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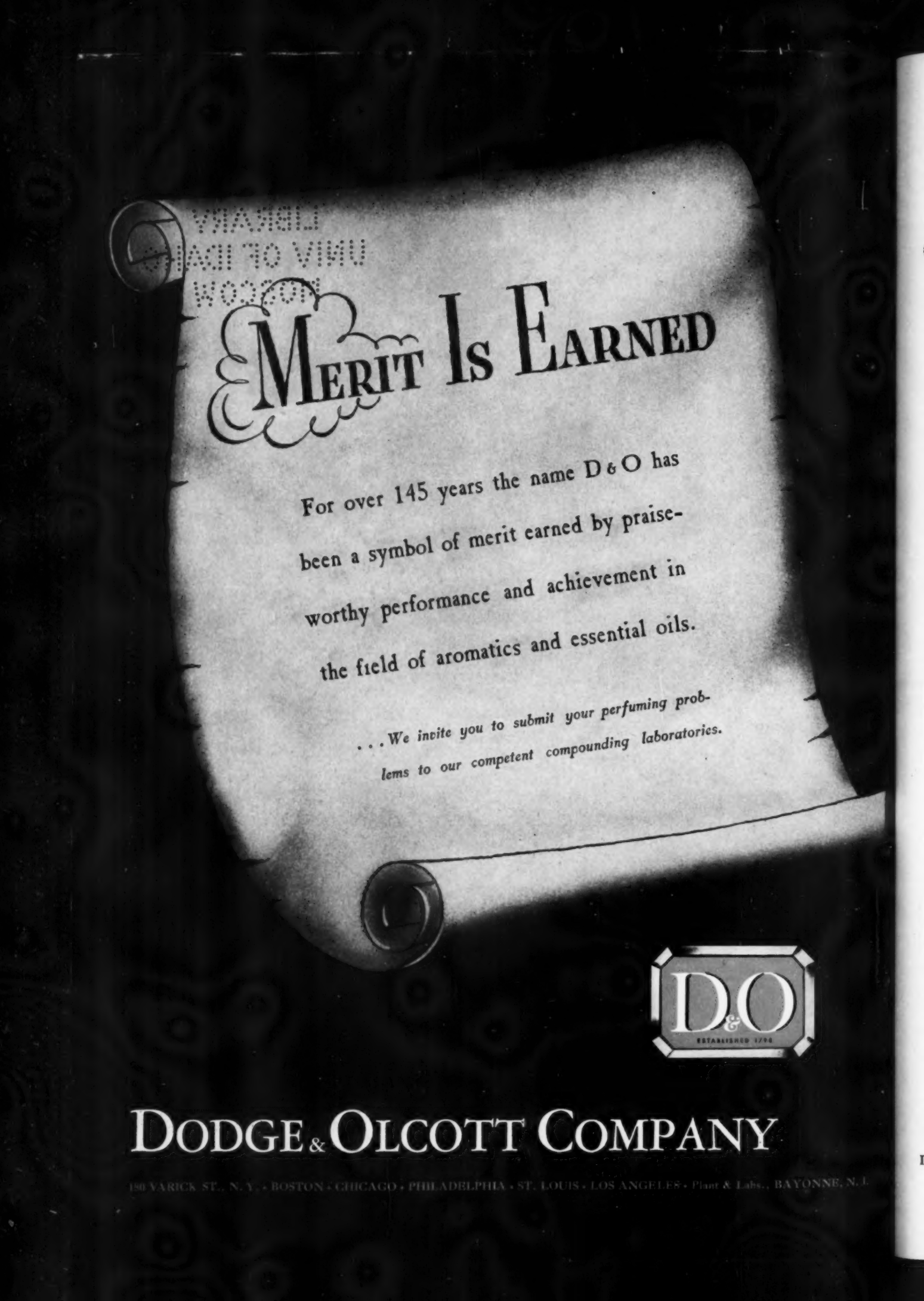
SANITARY CHEMICALS

THE LONG VIEW

In our organization we have taken "the long view" in preparation for post war business. A large staff of highly trained, long experienced perfume-chemists stand ready to create exceptional odors for your soaps and sprays, as soon as you say the word.

VAN AMERINGEN-HAEBLER, INC.
315 Fourth Avenue New York 10, N. Y.

December 1944


MERIT IS EARNED
For over 145 years the name D & O has been a symbol of merit earned by praiseworthy performance and achievement in the field of aromatics and essential oils.
...We invite you to submit your perfuming problems to our competent compounding laboratories.
D&O
ESTABLISHED 1798
DODGE & OLCOTT COMPANY
180 VARICK ST., N. Y. • BOSTON • CHICAGO • PHILADELPHIA • ST. LOUIS • LOS ANGELES • Plant & Labs., BAYONNE, N. J.

Stronger and Cheaper than ordinary pine oil disinfectants!

DISINFECTANT P-19

High bactericidal action makes P-19 the ideal disinfectant for general sanitary use in building maintenance work. P-19 has a phenol coefficient of 5 (FDA) against E. Typhi and 4 (FDA) against Staph. Aureus. Ordinary pine oil disinfectants do not kill the Staph. Aureus organism . . . have a lower coefficient against E. Typhi. Makes a white emulsion instantly when mixed with water.

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Liquid Soaps, Floor Seals, Floor Treatments, Deodorant Blocks, Liquid Deodorants, Plumbing Specialties, Special Cleaners, Self-Polishing Waxes, Powdered Waxes, Oil Soaps, Liquid Cleaners, Disinfectants, Insecticides, Metal Polishes, Furniture Polishes, Deodorant Block Holders, Soap Dispensers.

GONE *Forever*

GONE is the Spirit of the Gay Nineties.
Tuned to the increasing tempo of modern day living, it is our endeavor, through research, to give our customers the advantages of the latest developments in our field.

Products which are available to the perfumer at reasonable prices:

OIL OF BALSAM FIR AMERICAN
METHYL NAPHTHYL KETONE CRYSTALS
VERATRALDEHYDE
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IONONE METHYL
INDOL
PHENYL ACETALDEHYDE DIMETHYL ACETAL
HYDRATROPIC ALDEHYDE
PARA METHYL HYDRATROPIC ALDEHYDE
CINNAMIC ALCOHOL
CYCLAMAL
PHENYL ETHYL ALCOHOL

Requests for samples on your firm's letterhead and further information will be promptly furnished.

Aromatics Division

GENERAL DRUG COMPANY

644 Pacific St., Brooklyn 17, N. Y.

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Volume XX Number 12

SOAP and SANITARY CHEMICALS

Reg. U. S. Pat. Office

DEC.
1944

SANITARY Products Section, which forms a part of every issue of SOAP, Begins on page 79.

MEMBER AUDIT BUREAU OF CIRCULATIONS

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A Merry Christmas

. . . and early and enduring peace with speedy reunion of friends and families long parted by the war.

May abundant prosperity be yours in the coming year and those that follow.

Tombarel

PRODUCTS CORPORATION

L. J. Zollinger, President

12 East 22nd Street, NEW YORK 10

ALL THE WORLD'S A STAGE—including store counters where products are sold. Manufacturers put their best into the products displayed there—and then the public comes by—and judges the products *by the packages!*

It doesn't matter if your package is "fancy" or plain, whether it contains perfume or a germicide, a cosmetic, hardware, or a drug. Among *competing* packaged-products the human eye turns naturally, and with interest, to the "best looking."

If your package has good design, if it is pleasing to the eye and striking or attractive, it HAS BEAUTY and it WINS FAVOR! For beauty influences people's choice in *everything* from motor cars to mates, from neckties to kitchen ranges.

That's why refrigerators, tooth brushes, cars, and a thousand other products have advanced—by successive redesignings—from crude beginnings to more pleasing forms, proportions, colors and finishes. They—like packages—compete in a *beauty* contest; and their manufacturers *know* . . . BEAUTY SELLS!

That is why, in every Package by Ritchie—whether it contains a drug product, a cosmetic or toggle bolts—you will always find, in its lines, in its proportions, color or general design, a strong eye-pleasing quality—elements of beauty.

HOW TO GET A BETTER PACKAGE AT LESS COST

Let Ritchie design your *future* package and it will have beauty *more than skin deep*. It will have the right material and structure for its job. It will be practical, convenient to use, easy to handle, to stack and display. It will proclaim your product-identity. It will be memorable and attractive. And Ritchie's expanded, war-developed facilities for volume production assure its low cost. Let Ritchie demonstrate how *you* can get a better selling package. No obligation. Write us today.

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Set-Up Paper Boxes
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Transparent Packages

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IT "HOLDS UP"

LIGHT–STABLE
MAINTAINS CONSTANT VISCOSITY
PRODUCES CONSISTENT RESULTS

From the original formulation to the actual application in your product, Methocel is stable. Its rugged film-forming qualities—its wide viscosity range and chemical compatibility—"hold up" under the most exacting requirements. Whether in its original solid form or in liquid, Methocel maintains constant chemical stability. Odorless, colorless and nontoxic, this water soluble material is also resistant to alkalies, dilute acids, fermentation and mold growth.

METHOCEL

THE ECONOMICAL, WATER SOLUBLE THICKENER

Continuous films that can be obtained upon drying emphasize the wide range of usefulness of Methocel in cosmetic and pharmaceutical products. Particularly in protective hand creams, cosmetic stockings, and hair lacquers, this pliable, protective film-forming ability is proving advantageous. This property is rarely, if ever, found in other water soluble thickeners.

Methocel is nontoxic, chemically stable and resistant to mold. Investigate its possibilities for use in your product. Write Dow Technical Service for further details.

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New York • Boston • Philadelphia • Washington • Cleveland • Detroit
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Among the many Dow Products serving the Cosmetic Industry are: Synthetic Aromatics, Dowicides, Propylene Glycol and Paradow.

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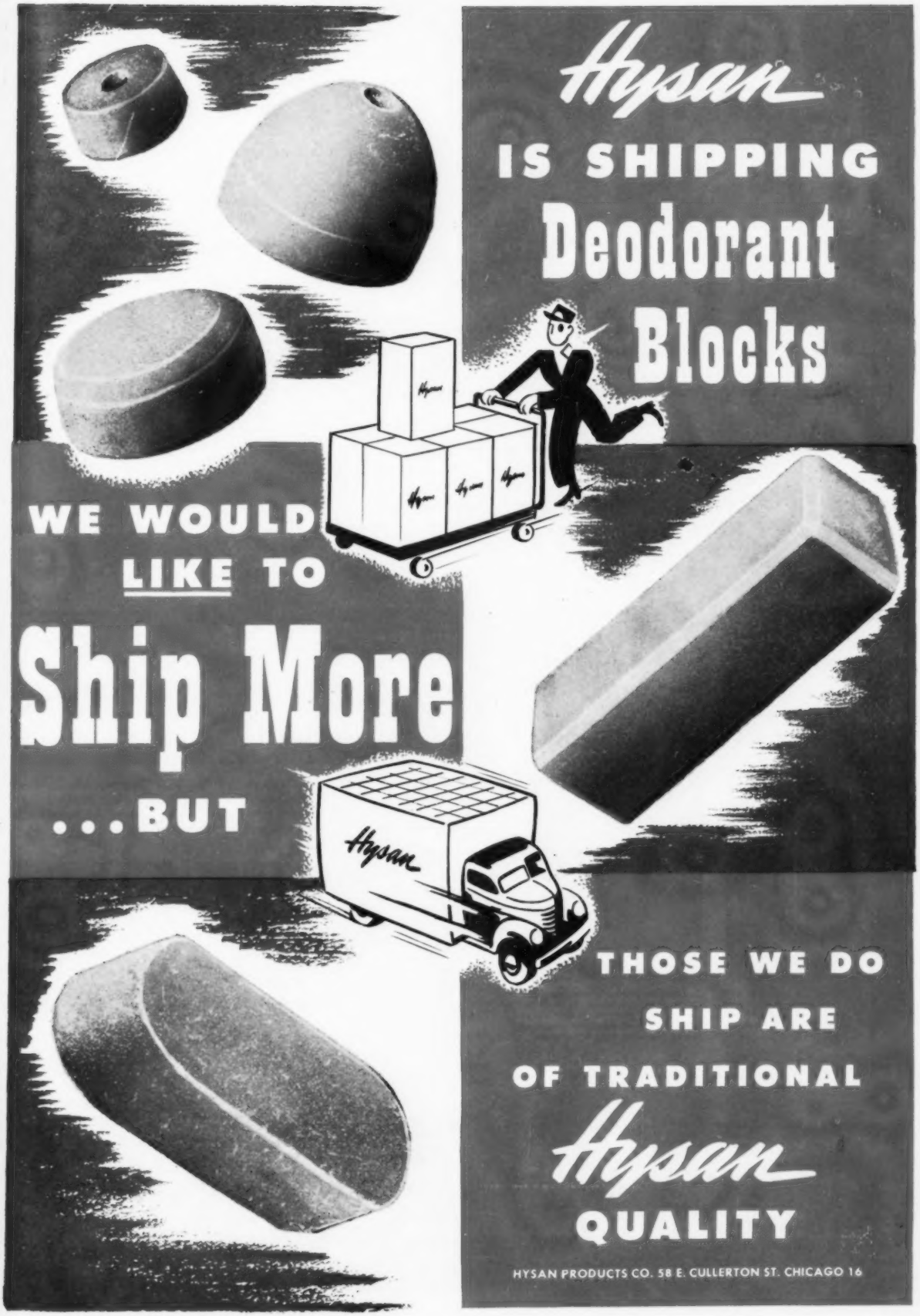
TO INDUSTRY AND VICTORY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IS SHIPPING
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WE WOULD
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Hysan
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"Mighty Smooth!"

SUN RAY STEEL WOOL HAS BEEN USED HERE

You get a "mighty smooth" finish on any surface — dance floor, office floor, furniture or woodwork—when you use Sun Ray Steel Wool. You get uniformly excellent results whether you work with wood, metal, pottery or other materials.

With help shortage still acute Sun Ray Woolers are keeping a gloss on millions of square feet of flooring in offices, schools, hospitals, and institutions. The endurance, controllability, and flexibility of the steel wool in these woolers give each strand the proper "bite."

Sun Ray Woolers are easy to apply to any disc type floor machine. Simply tilt machine and wheel to position over wooler, allowing brush to rest centrally on pad. These woolers never roll up or "bunch" or interfere in any way with the smooth operation of the floor machine.

Sun Ray Layer Built Pads are big, handy to work with, and exceptionally economical. When one layer is used it can be folded back exposing a fresh surface.

Craftsmen prefer these pads because they are made from long strands of precision-cut steel wool arranged parallel, insuring faster cleaning and polishing.

The Sun Ray Wooler attached to brush . . . ready for the hardest polishing job. Their use insures a smoother finish on any waxed floor surface. These woolers also aid in doing away, to a remarkable degree, with the slippery condition usually associated with waxed floors.

Sun Ray Layer Built Pads provide the highest quality steel wool in its most convenient form. They are yielding, and flexible and work perfectly on curves and uneven surfaces. They are especially fine for cleaning kitchen utensils.

Sun Ray

Steel Wool Products

THE WILLIAMS COMPANY • LONDON, OHIO

ALKALI
Season's Greetings from
STANDARD
SILICATES
IMPROVES THE BODY
MAKES SOAP STOCKS GO FARTHER
RETARDS RANCIDITY
IMPROVES DETERGENCY
To all our friends throughout the industry we extend best wishes for Christmas and the coming year. We appreciate the continued use you have made of our products, and look forward to the time when the reduction of war requirements will permit us to give you more and better service.
DIAMOND ALKALI COMPANY • Standard Silicate Division
Plants at CINCINNATI . JERSEY CITY
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DALLAS, TEXAS
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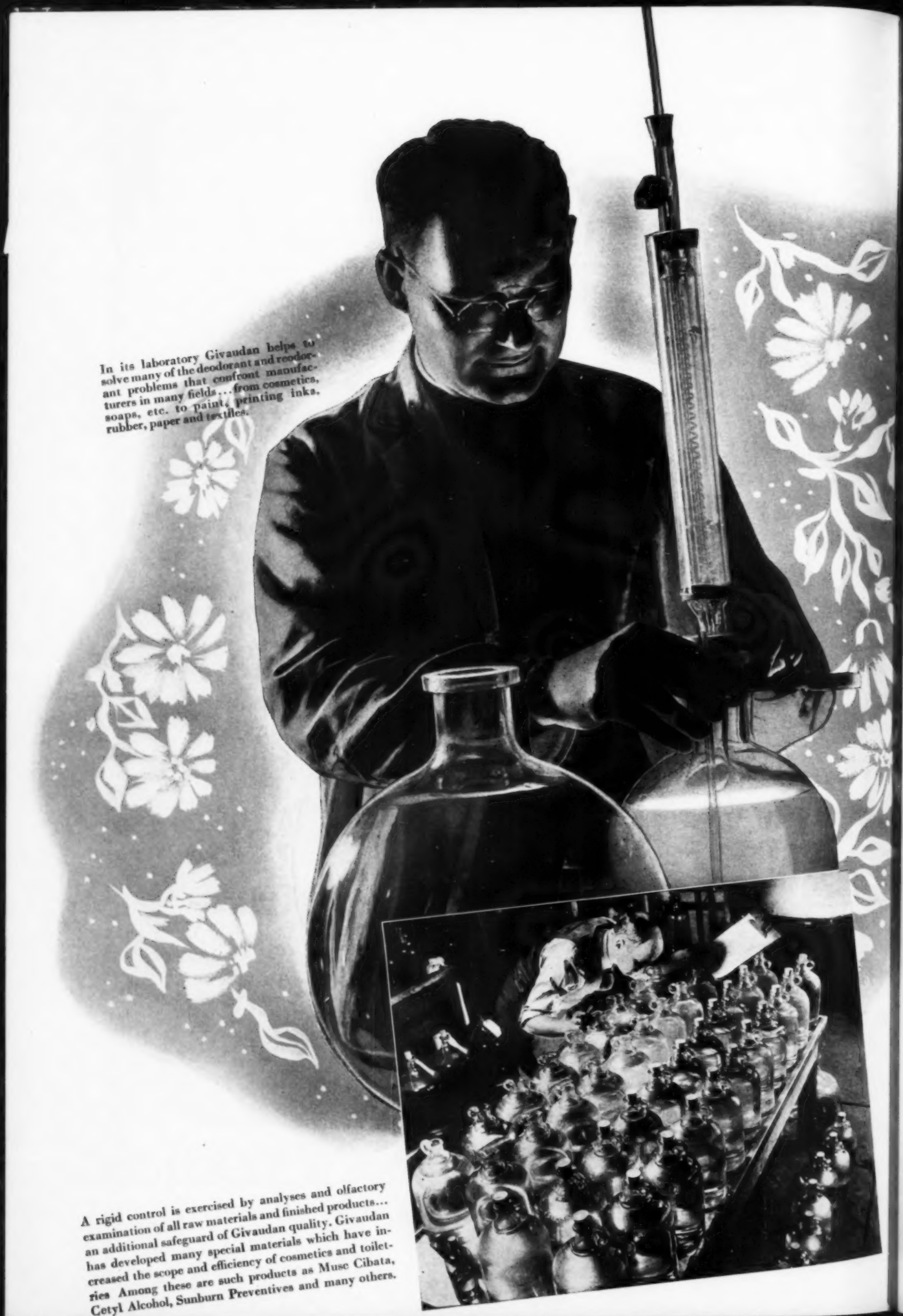

In its laboratory Givaudan helps to solve many of the deodorant and reodorant problems that confront manufacturers in many fields... from cosmetics, soaps, etc. to paint, printing inks, rubber, paper and textiles.

A rigid control is exercised by analyses and olfactory examination of all raw materials and finished products... an additional safeguard of Givaudan quality. Givaudan has developed many special materials which have increased the scope and efficiency of cosmetics and toiletries Among these are such products as Musc Cibata, Cetyl Alcohol, Sunburn Preventives and many others.

AN OFFER OF *Cooperation* TO MEET THE CHALLENGE OF TOMORROW... THROUGH GIVAUDAN RESEARCH

As the military demands for materials normally used in the perfume, cosmetic and soap industries level off, more and more opportunities are being offered to manufacturers for construction planning of postwar products.

To these manufacturers Givaudan offers the full cooperation of its research laboratories. If you have special aromatic or perfuming problems, or if you need assistance in planning new products—or whole new lines of cosmetics—you will find Givaudan ready, willing and able to give you a helping hand. Illustrated here are a few of the up-to-the-minute facilities at your disposal.

BUY WISELY... BUY GIVAUDAN

Givaudan-Delawanna, Inc.

330 WEST 42nd STREET • NEW YORK 18, N. Y.

No Substitutes Needed for these Hooker Chemicals

Below are listed some of the Hooker chemicals that you want and can get in the quantities you need. All are of the same Hooker high quality and uniformity that have been pleasing soap and sanitary chemical buyers for years. More complete information on these and the other Hooker chemicals is available when requested on your letterhead. Hooker's Technical Staff is ready now, as always, to give you help in the use of Hooker chemicals.

PRODUCT (Chemical Formula Molecular Weight)	DESCRIPTION All Specific Gravities at 15.5°/15.5°C.	SUGGESTED USES
Benzoate of Soda—USP C_6H_5COONa; 144.0	White, odorless, crystalline solid.	Antiseptic in pharmaceutical and medicinal preparations, in tooth pastes and powders.
Benzoic Acid C_6H_5COOH; 122.1	White, crystalline material.	Ingredient of cosmetic creams, lotions and other pharmaceutical preparations; antiseptics, dentrifices, dyestuff intermediates. Manufacture perfumes and pharmaceuticals.
Benzoyl Chloride (Benzenecarbonyl Chloride) C_6H_5COCl; 140.5	Water clear liquid soluble in ether; reacts with alcohol and water. Sp. Gr. 1.219±.003. Boiling Point 198°C. Freezing Point, Min. —0.9°C.	Highly active source of benzoyl group. Manufacture of benzophenone, benzyl benzoates, synthetic perfumes, dyes and pharmaceuticals.
Cyclohexanol (Hexahydro Phenol) $C_6H_{11}OH$; 100.1	Clear, colorless liquid with pleasant aromatic odor. Sp. Gr. 0.962. Boiling Range: High Grade, 158° to 160°C, Tech. Grade, 155° to 165°C.	In manufacture of disinfectants, germicides and insecticides, perfumes in soaps, solvent.
Methyl Benzoate (Niobe Oil) $C_6H_5COOCH_3$; 136.1	Clear, colorless liquid with odor resembling oil of wintergreen. Sp. Gr. 1.0930. Boiling Range 2°C Max. including 199° C.	Deodorizing material for soaps and in manufacture of perfumes.
Methyl Cyclohexanol (Hexahydro Cresol) $CH_3C_6H_{10}OH$; 114.1	Slightly viscous straw colored, neutral liquid which becomes glasslike when cooled below room temperatures. A mixture of ortho-, meta-, and para-isomers. Sp. Gr. 0.924±.003. Boiling Range 155° to 180° C.	Perfume in soaps and to incorporate solvents and phenolic insecticides; solvent.
Orthodichlorbenzene (1:2 Dichlorbenzene) $C_6H_4Cl_2$; 147	Clear, colorless liquid. Sp. Gr. 1.310±.005. Boiling range 10° C Max. including 180° C.	Insecticide, solvent for natural and synthetic gums, resins, tars, grease, oil, fats. Ingredient of metal polishes, paint and varnish removers. Insecticide for: termites, powder-post beetles, flies, bed bugs, roaches, wood borers, midges, barnacles, etc. Manufacture of pyrocatechin, dye intermediates, synthetic organics.
Sulfur Dichloride SCl_2; 103	Dark brown or reddish liquid. Sp. Gr. 1.638±.005. Decomposes above 40° C. 66% Min. Cl_2 content.	Chlorinating agent, in manufacture of organic acid anhydrides and in organic synthesis.
Sulfur Monochloride S_2Cl_2; 135	Yellow to slightly reddish liquid. Sp. Gr. 1.690±.005. B. P. 138° C. 50% Min. Cl_2 content.	Manufacture of insecticides, linseed oil substitutes, dye intermediates, pharmaceuticals, organic acid chlorides.

Send for this Hooker Caustic Soda Booklet

Have you sent for your copy of the Hooker "Caustic Soda" booklet? It contains helpful information of particular value to new employees. It includes precautions for handling, and equipment suggestions, as well as physical and chemical data on caustic soda. Copies are free when requested on your letterhead.

HOOKER CHEMICALS

HOOKER ELECTROCHEMICAL COMPANY

Buffalo Avenue and Union Street, Niagara Falls, New York

NEW YORK, N. Y. • WILMINGTON, CALIF. • TACOMA, WASH.

Caustic Soda	**Muriatic Acid**	**Bleaching Powder**
Paradichlorbenzene	**Ferric Chloride**	**Monochlortoluene**

Norda

Synthetic floral oils . . .

PRESENT reduced supplies of natural floral essences emphasize the value of high quality substitutes. Synthetic floral essences can be used to replace the natural oils with full satisfaction and marked success in numerous products,—toilet soaps, shampoos, shaving creams, powders, creams, and many others.

In fact, in many products the newer synthetic floral essences are to be *preferred* for the manner in which they reproduce the true fragrance of the living flowers in the finished product,—not to mention uniformity of quality and odor fidelity, and their economy under present conditions.

Let us tell you more about these Norda substitutes as an answer to the scarcity of natural floral oils.

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Los Angeles Office
2800 E. 11th Street

St. Paul Office
253 E. 4th St.

Toronto Office
119 Adelaide St., W.

New York Office
601 West 26th St.

Montreal Office
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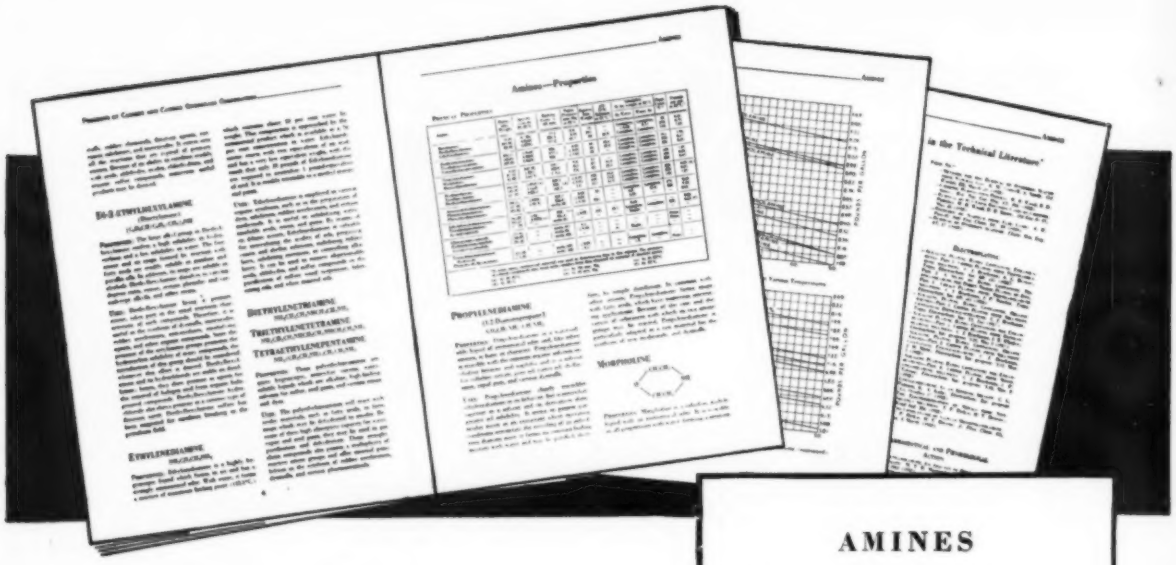

"AMINES"

This new booklet is crammed with useful information about these interesting compounds

THE 25 amines produced on a commercial scale by Carbide and Carbon Chemicals Corporation are used in emulsifiers for camouflage paints, insecticides, and cutting oils. They are also used as carbon-removers, corrosion-inhibitors, and acid gas absorbents, and as intermediates in the production of dyes, detergents, photographic compounds, and pharmaceuticals. Each of them is described in this new publication available now for the first time.

Included in the booklet are general descriptions, physical properties (including graphs), specifications, and applications of these important chemical raw materials, as well as helpful bibliography.

You can have a copy of the booklet, "Amines," by writing for it. There is no obligation.

Similar booklets are available on "Glycols," "Organic Acids," and "Columbia Activated Carbon." We will be glad to send you a copy of whichever ones you need.

AMINES

Ethylenediamine
Diethylenetriamine
Triethylenetetramine
Tetraethylenepentamine
Propylenediamine

•

Monoethanolamine
Diethanolamine
Triethanolamine
Methyldiethanolamine
Diethylethanolamine
Aminoethylethanolamine
Phenylethanolamine
Phenyldiethanolamine
Ethylphenylethanolamine
Triisopropanolamine
Tetraethanolammonium Hydroxide

•

Butylamine
Diethylhexylamine

•

Acetoacetanilide
Chloracetoacetanilide
Dichloracetoacetanilide
Acetoacet-o-toluidide

•

Morpholine
Thialdine
Phenylmethylpyrazolone

For information concerning the use of these chemicals, address:

CARBIDE AND CARBON CHEMICALS CORPORATION

Unit of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York 17, N. Y.

PRODUCERS OF SYNTHETIC ORGANIC CHEMICALS

KRANICH SOAPS

CONCENTRATED

LIQUID SOAP
SHAMPOO

☆ ☆ ☆ ☆ ☆

POWDERED SOAPS

Pure Coconut
U.S.P. Castile

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POTASH SOAPS

Soft Potash 40%
U.S.P. XII Green

☆ ☆ ☆ ☆ ☆

Kranich Soap Company, Inc.

55 Richards Street **Brooklyn 31, N. Y.**

KRANICH SOAPS

An **ADVERTISING AGENCY** *Describes*

Your Institutional Market!

"Every single segment of the institutional field shows promise of being a bigger customer than ever before.

'The institutional field consists of those businesses and services whose functions are the mass housing and mass feeding of individuals. The major segments of this market include hotels, hospitals, restaurants, schools and colleges, industrial cafeterias, clubs, homes and asylums, public institutions and similar establishments. In addition it includes a vast array of government institutions such as veterans' hospitals, office buildings, welfare facilities and others.

". . . There are approximately 300,000 institutions in the United States containing a total of 4,350,000 rooms. Their total floor area is 3,250,000,000 sq. ft. They employ over 4,000,000 workers. During a normal operating year the institutional field . . . is responsible for the purchase of $6,400,000,000 worth of maintenance and operating supplies and equipment. In the immediate post-war period this figure will reach $8,500,000,000, according to most recent surveys.

"As huge as the institutional market is today, it is going to be even greater after the war. The rapid growth of such influences as hospital insurance . . . the eating-out habit . . . the pent-up travel urge . . . the war boom in industrial cafeterias . . . all these and others . . . are exerting an upward pressure on the institutional market and every single segment of this field shows promise of being bigger than ever before . . . There is your institutional market! I strongly urge you to go after it."

The foregoing is from a talk by Mr. M. J. Evans, chairman, Evans Associates, Inc., advertising agency, Chicago, describing the institutional market before the June, 1944 Convention of manufacturers of cleaning compounds, disinfectants, insecticides and sanitary chemicals. Mr. Evans' photo, addressing this group, is shown at the right.

INSTITUTIONS Magazine is the only publication through which you can reach all related divisions of the institutional field. If your present or contemplated products have an application to this field, your advertising messages in the columns of INSTITUTIONS Magazine will gain for them the kind of acceptance they must have to share in the huge institutional market.

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Institutions
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POSTWAR PRODUCT FORECAST
Urge Use of No-Point Low-Point Food Recipes
DECORATORS STRESS POWER OF COLOR TO
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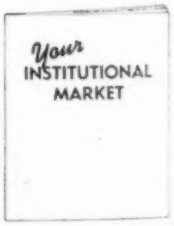
FUNCTIONAL DESIGN, EASIER MAINTENANCE WILL BE FEATURED
Wider Range of Sizes and Makes Promised

A Complete Report

of Mr. Evans' study and description of the institutional market has been printed in booklet form. Copies are available upon request. Write to INSTITUTIONS Magazine, 1900 Prairie Ave., Chicago 16, Illinois.



CONSULT YOUR ADVERTISING AGENCY

LAVENDER OIL ARTIFICIAL

SPANISH ROSEMARY

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ARTIFICIAL SASSAFRASS

For many years much of the research and development work of our laboratory has been devoted to the perfumery problems of the soap and sanitary chemicals industry. As a result we have been able to supply synthetic products successfully to relieve shortages caused by war conditions. Why not consult us regarding your problems? Samples upon request.

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★ Germicides
★ Cleaners
★ Detergents

The Dairy Industries are one of the nation's largest users of insecticides, germicides, cleaners, and detergents.

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You can reach and sell this market effectively and at low cost through the Dairy Industries Unit — the three leading publications in the dairy industries — The Ice Cream REVIEW, The Milk Dealer, and National Butter and Cheese Journal.

Write for details and sales data about building lasting and profitable repeat volume for your products among the thousands of ice cream plants, milk dealers, creameries, condenseries, and cheese factories of America.

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the ICE CREAM REVIEW ABC | the MILK DEALER ABC | National Butter and Cheese Journal ABC

On the trail of a new product?

depend on dupont

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du pont aromatics

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

DU PONT

E. I. DU PONT DE NEMOURS & CO. (INC.), ORGANIC CHEMICALS DEPT.
AROMATICS SECTION, WILMINGTON, DEL.

TALK about Lanolin to the average drug store customer, and what's the reaction? SPLENDID!!

While most folks *believe* Lanolin adds something to a product, our researchers can prove that the use of Nimco Brand Lanolin will result in a *better* product . . . a product with a talking point . . . with extra sales appeal.

If you haven't studied the potent possibilities of product improvement available through the use of Nimco Brand Lanolin, this is the time to begin your experiments.

The facilities and the know-how that have made Malmstrom America's Largest Supplier of Lanolin and Degras are available to you, together with samples, should you prefer to conduct your own tests.

America's No. 1 Choice Because It's 5 WAYS BETTER

MALMSTROM · NIMCO BRAND · LANOLIN

1. LOWEST *ODOR* VOLUME
2. GREATER *UNIFORMITY*
3. BETTER *COLOR* QUALITY
4. SMOOTHER *TEXTURE*
5. FINER *BODY* CONSISTENCY

N. I. MALMSTROM & CO.

America's Largest Suppliers of

LANOLIN • Anhydrous U.S.P. • Hydrous U.S.P. • Absorption Base • Technical

DEGRAS • Neutral and Common • **WOOL GREASES**

147 LOMBARDY STREET • BROOKLYN, NEW YORK

"Here's where I shine . . ." *says* WAXEY

WAXEY'S the lad who puts a better polish on any floor. With the other FLOORADORA BOYS, he's better yet. Better meet WAXEY!

"Gimme a floor. A *dirty* floor!—OK. You can get a load of the FLOORADORA BOYS when they *get going.*

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"Just one thing, though! We sure can't win battles without munitions. When you're getting supplies to us, make 'em good. Make 'em the best. Make 'em Davies-Young!"

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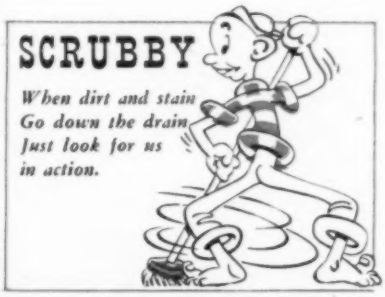

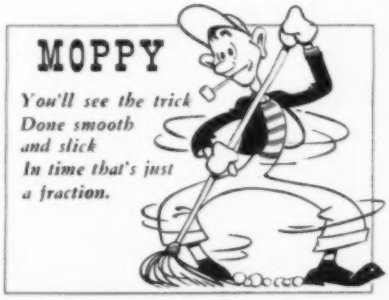

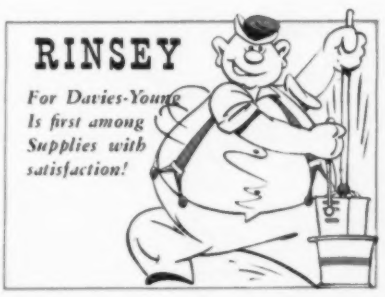

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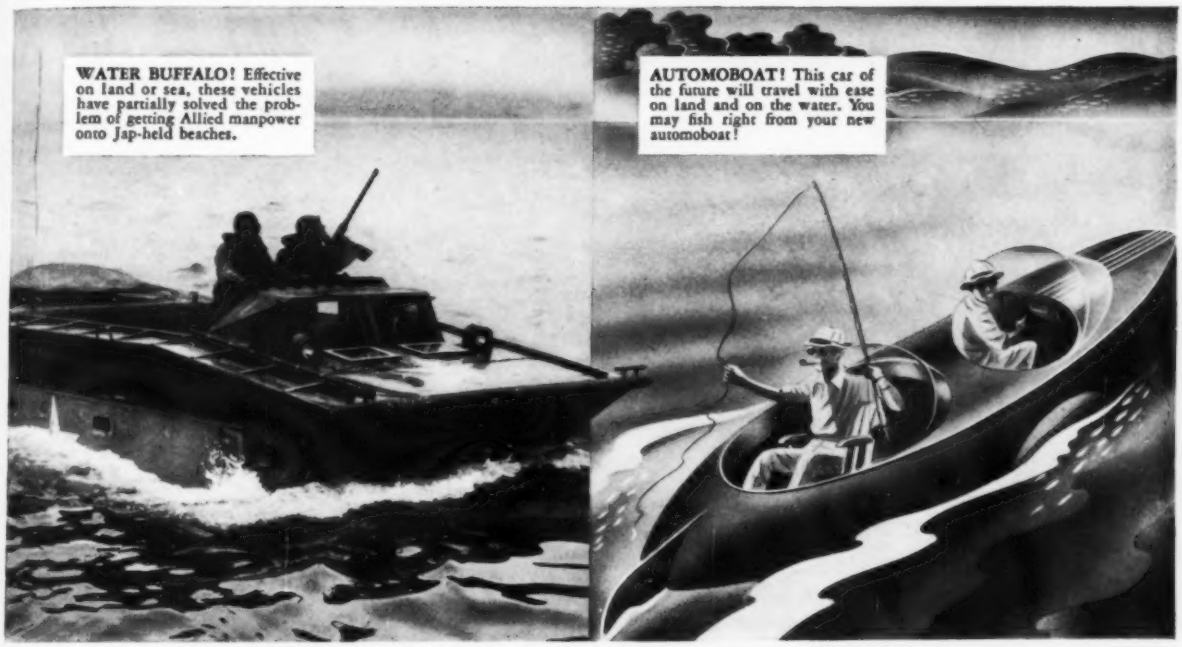
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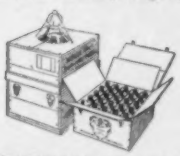

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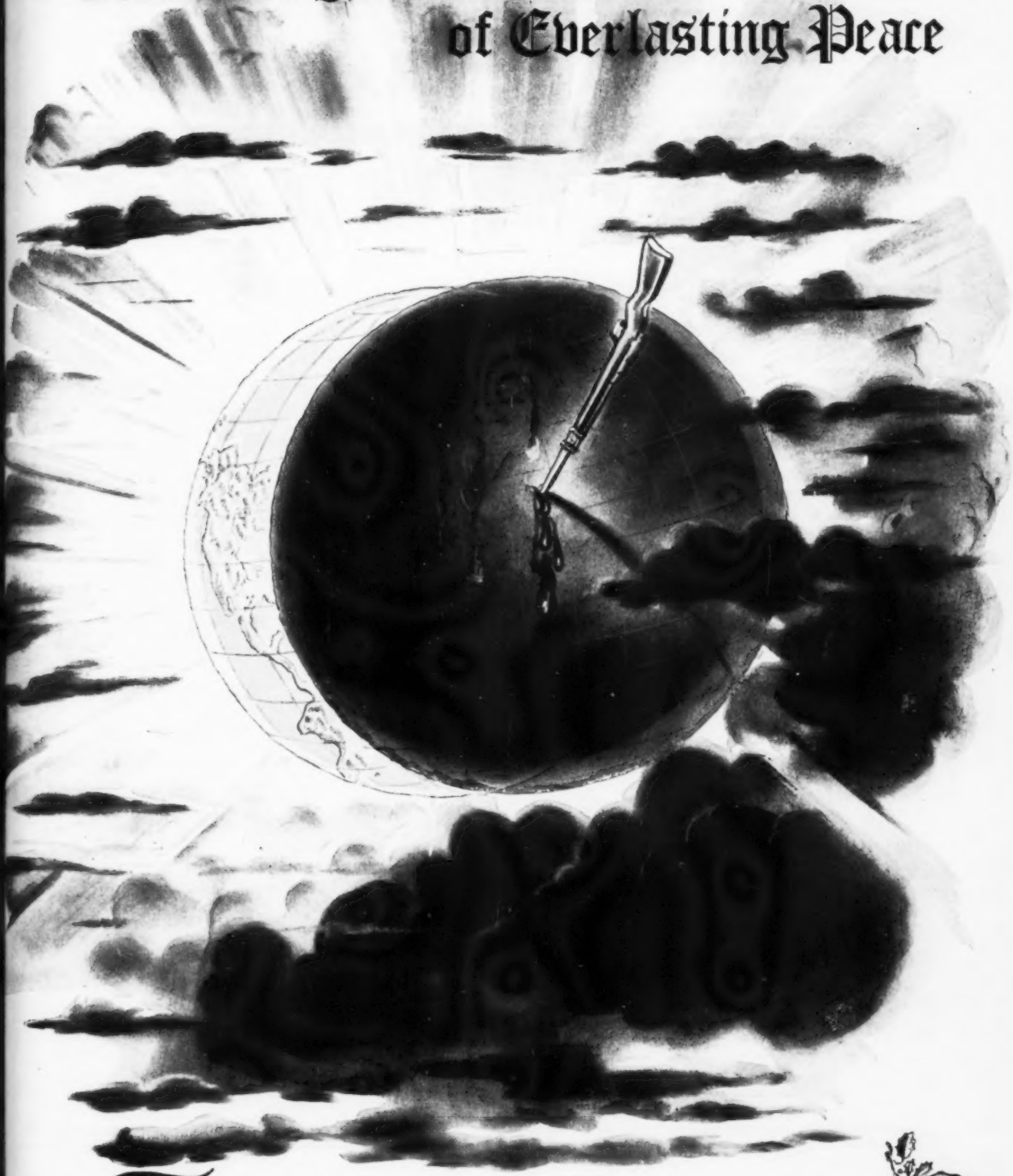

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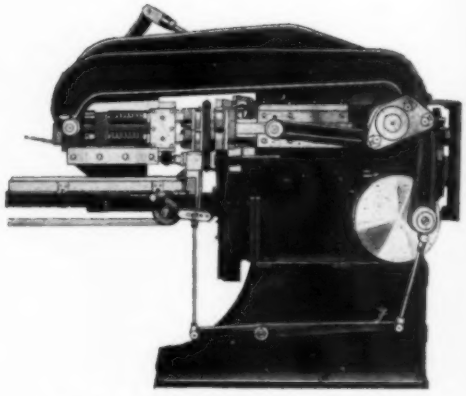

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AS THE EDITOR SEES IT

THAT there are manufacturers outside the soap industry who have looked with envious eyes on the annual value of soap sales has been no secret. Particularly among those who have been equipped with already established merchandising channels, the urge to get into the soap business has been strong. But over the past decade or two, a study of the soap industry and the competition which governs its operations under normal conditions has apparently been sufficiently discouraging to divert their attention elsewhere. In recent years, soap manufacturing operations originating without the industry and of any material consequence in the over-all picture have been nil.

The advent of an expanded production of newer synthetic detergent chemicals with the war has brought to the minds of numerous manufacturers their possibilities as direct nose-to-nose competitors with ordinary soaps after the war. As has been pointed out before, there are those who view these newer products as a potential opportunity to enter the field of soap merchandising, not with a highly competitive soap product, but with a product superior to soap. And, with the cost of the basic synthetic detergent materials brought down to levels competitive with soap after the war, the soap industry has been fully aware that the production and sale of soaps could undergo a change in the not too distant future.

Writing elsewhere in this issue, Dr. C. W. Lenth, former chief of the soap, as well as the oil and fat divisions of the War Food Administration, and who is in an extremely advantageous position really to view the entire detergent picture, is not at all pessimistic about the future of ordinary soaps. He sees in low-cost oils and fats, most of the latter being chiefly by-products which must be produced and sold, a strong barrier which competitive detergent materials must surmount. And when we harken back a few years and note that tallow and coconut oil have on many occasions sold under three cents, we realize the height of the barrier for any competitive product. Nevertheless, we appreciate that high cost has frequently been the drawback of newer things in their fight for a market,—but, that those with merit have eventually overcome the obstacle. We feel that the newer detergent materials have proved their worth more than ever during the war and that they will continue to find wider uses in civilian products after the war,—and that soapers should not forget for a minute the "eyes of envy" of outside competition!

IF the demand for soap products, particularly government requirements, is as great over the next six months as has been estimated recently, indications point to the development of a shortage of soap for domestic civilian uses along about next spring. Behind such a shortage, if it develops, will stand a series of causes, chief of which will be heavy government purchasing. Even if the necessary fats to produce close to five billion pounds of soap products within the fiscal year ending next June 30 might be available,—which of course is unlikely,—this figure is in excess of total American kettle capacity.

If the government takes as much as a billion-and-a-half pounds of soap, as has

been mentioned, then civilian supplies for the period may be short anywhere from one-half to one billion pounds. The chances are that with every facility in full use, the total soap production for the year cannot exceed four-and-a-half billion pounds irrespective of the availability of soap fats.

So, it would all seem to hinge on how much soap the government takes. If the tonnage is as large as has been predicted, then it is difficult to see how soap can be else but in short supply by next April or May.

IF WE may judge by recent talk of what appear to be otherwise hard-headed business men, not too much effort would be required to convert them again to a belief in Santa Claus. We hear talk of this and that in the way of post-war plans,—how we are getting to hate the very sight of that overdone word, post-war,—of ten million new jobs to be created out of the new demand for better things, from the accumulated demand for durable goods grown out of the war, from the cooperation of commerce and industry. When we read or hear of these grandiose ideas, we wonder if those who put them forward really and truthfully believe their own words. If so, then we feel that there must be more crackpots and dreamers in the drivers' seats of industry and government than we had any idea. Or is it just wishful thinking?

About a year ago in Washington, the word of the hour in and about the government bureaus was "realistic." This word should again be withdrawn from the oblivion into which it has since retired, dusted off and put to work again. For, if ever there were need for realism in our so-called thinking, right now appears to be the time. It seems to us that both the government and industry have been kidding themselves long enough, and instead of playing Pollyanna, should take out a few of the less-pretty parts of the picture and look them over rather carefully,—the wide economic chaos which is bound to follow any war such as the present one, the size of our national debt which is glossed over so glibly by politicians, the taxes needed to service and pay off this debt and their effect on oft-mentioned industrial expansion, the spectre of inflation, etc., etc.

Thus far, from within the American soap industry, there have come none of these Pollyanna predictions. We feel that at least this is a mighty good start toward keeping things on an even keel in the industry when war-time demand ends and things return to the knife-keen competition of normal days. And actually, the average soaper has as little to fear from reconversion as any manufacturing group of which we can think. He has been making soap for the war. After it is over, he will continue to make the same soap. But it is not going to be all roses and sweet music,—but tough competition and heavy taxes,—and for many a long year. And with this, we believe, most soapers agree. Nothing would please us better than to be in accord with the boys who appear still to believe in Santa Claus, but we feel that it represents dangerous wishful thinking,—thinking and talking which have the ear-marks of 1928-29,—and that a few spikes should be driven into it before the war is over so that we may be ready for the shock when it comes.

DIFFICULTY in purchasing suitable advertising space in both newspapers and general magazines is reported to be handicapping any number of new products which are ready to go on the market. Frankly, we never thought that we would live to see the day when inability to purchase advertising space would constitute a major stumbling block in any marketing campaign. But today we have just such a condition. And from all appearances, it is likely to continue as long as paper consumption is limited by WPB quotas.

POST WAR SOAP OUTLOOK

by

C. W. Lenth

UPPERMOST in the minds of all industries is the question as to the effect of cessation of hostilities on the demands for their products. The soap industry is, of course, no exception and we shall accordingly attempt to do a little crystal gazing into the future.

Before speculating on the post war situation, it is well to consider the effect that the war has had on the industry to date. The data given in Table I on the production of soap by classes and in Table II on the consumption of fats serve as a basis on which the effects of the war may be measured. In evaluating the data, it is necessary to decide what might be considered a normal year. Nineteen hundred and forty-one was the largest year in fat consumption by soap makers prior to the war, but it is well known that consumption of fats and sales of soap were largely influenced by the imminence of the war and rising prices. Consequently, it is probably safe to assume that the production of soap in 1941 was not a measure of the consumption. The previous year, 1940, also included some speculative buying and production for inventory. However, this was less marked than in 1941 and 1940 is probably the most nearly "normal year" available.

Unfortunately there are no soap production figures for 1940. However, the primary fats consumed for soap making in 1940 as reported to the Bureau of Census were 1,723 million pounds. It has been estimated that an additional 128 million pounds of secondary fats, including foots and fatty acids, were also consumed, making a total of about 1,851 million pounds of fats. If the premise is accepted that 1940 was a normal year, then any increase over the fat consumption of that year may be attributed directly or indirectly to the war.

Dr. C. W. Lenth should be as well qualified as most any person in the soap industry to write on the post-war soap outlook, drawing as he does on the accumulation of several years of experience in running the soap division of WFA, and prior to that the corresponding unit in WPB. He predicts and estimates probable trends over the years ahead in production and consumption of various types of soap products, with special attention to the place of synthetic detergents in the post-war soap market.

The soap fat consumption during the first six months of 1944 was 978 million pounds of primary fats and approximately 125 million pounds of secondary fats so that the estimate for the year 1944 is about 2,000 million pounds of primary fats and 250 million pounds of secondary, a total of 2,250 million pounds or 400 million pounds above 1940. Of the 2,250 million pounds estimated for 1944, 1,570 million is likely to be used for civilian package and bar soap, 270 for bulk industrial products and 200 for synthetic rubber, textiles and various miscellaneous non-detergent uses, making a total for civilian use of 2,040 million pounds. The balance of 210 million pounds is earmarked for the armed forces, lend-lease and relief.

The question is, where has the increase occurred during the war years which is likely to be maintained? The fat consumed for package and bar soap for civilian use has been subject to quotas and is currently at 90 per cent of the base years, 1940-1941. It is doubtful that any substantial decrease in this rate will occur soon, although the level of employment is a strongly governing factor in determining the consumer demand for soap.

The bulk quota, currently at 110 per cent of the base years, is probably higher than the real demand for industrial soaps, as it is known that some companies have been unable to dispose of their full quotas. It is probable that this consumption will drop to somewhere in the neighborhood of 200 million to 225 million pounds as soon as the increased load on commercial laundries drops to normal. Of the remaining 200 million pounds of fat assigned to civilian soap, approximately 100 million pounds is for the synthetic rubber program and so long as the production of GR-S rubber continues, this quantity of soap will probably be needed. The consumption for textiles is probably somewhat higher than normal, due to the large amount of processing of military textiles. It is likely that this quantity will drop off by 25 to 35 million pounds as soon as the military demands lessen. The miscellaneous non-detergent uses such as wire drawing, shell drawing, metal working compounds and the like probably will not be affected for some time since the civilian demand for products made by the same processes is likely to be heavy. Consequently it is doubtful that the total use of fats for rubber, textiles and other miscellaneous uses will decrease much more than 25 to 35 million pounds.

The next big question is the size of the military and relief requirements. When the European phase of

the war is over, there will probably be some reduction in the armed forces, but it is also probable that demobilization will be slow and the military requirements are likely to continue for some time at nearly their present levels. The relief requirements are, of course, a big question mark and all sorts of astronomical figures have been mentioned in connection with them. However, it should be recalled that the pre-war consumption of soap in most of the European countries was rather low and during the war the availability and kind of soap has been such as to discourage its use in any substantial quantities. Consequently, the soap habit has probably received something of a set-back. Since it is to the interest of provisional governments to find work for the citizens, it is probable that strong efforts will be made to produce soap domestically as soon as possible. Furthermore, with the strong desire on the part of South America and the British Empire for world trade, it is doubtful that any heavy continuing demand on the United States will be made from Europe.

The current talk in the government is in terms of a total soap fat requirement for 1945 of between 2,400 million and 2,500 million pounds. In view of the fact that man power problems and plant capacities are governing factors, it is doubtful that this goal can be achieved, and it is probable that little more than the current rate of approximately 2,250 million pounds of fat can be converted to soap. This will probably drop off to about 2,000 million pounds of total fats as soon as the armed forces and relief requirements are satisfied if employment levels are reasonably high.

So far the discussion has been based on fat consumption, without mention of the types of soap likely to be produced. The data in Table I show the trends in the various classes of soap—for example, toilet soap production is currently estimated at approximately 100 million pounds above the 1939 level. There are several reasons for this increase and among them are first, that higher consumer income results in a switch from cheaper types of soap to toilet soap and; second, the fact that included in this figure are large quantities of soap for the armed forces such as Navy salt water soap, all-purpose soap and the requirements of the Post Exchanges and Ship's Service Stores. It is probable, that the production of toilet soap will in the post-war period decline somewhat and level off to between 400 and 450 million pounds.

BAR laundry soaps have both declined in production, — white laundry because of the shortage of coconut oil and the yellow, because of man-power problems, disadvantageous price ceilings, and the trend in consumer demand as a result of higher incomes from the cheaper grades of soap to the better grades. The production of granulated, powdered and sprayed soaps has shown a marked increase, approximately 400 million pounds. Some of this is, of course, at the expense of chips and flakes, but it is primarily attributable to consumer demand and the fact that some washing machines are designed for the exclusive use of this type of soap. It is probable that this production will continue and perhaps expand when the current pressing demand for new washing machines is satisfied.

The production of packaged soap chips and flakes has decreased somewhat since 1939, partly as a result of the trend to granulated soaps and also to the disappearance from the market of highly built coconut oil flakes which were popular during the depression years. The increase in bulk flakes is almost entirely attributable to the synthetic rubber program and as mentioned above so long as this program continues, this soap requirement will be maintained. There is, however, experimentation on non-soap emulsifiers and it is possible that in the post-war years some, if not all, of the requirements for the rubber industry will be met by some of these new products in place of soap.

Packaged washing powder production has increased substantially, due almost entirely to the requirements of the Navy. The continuing requirements for this material are dependent on the policy followed by the Navy. If the Navy is maintained at its present strength in active service, it is probable that the present quantity will be required. However, if some portion of the Navy is decommissioned after the Japanese war ends, a proportionately smaller quantity will be needed. It is impossible at this time to guess which policy will be adopted.

Of the remaining items in Table I the only ones showing a substantial increase are shaving soaps and textile soaps. Production of shaving soaps has increased primarily because of the demands by the armed forces, and while the same number of men will be a portion of the civilian population in post war years, it is doubtful that they will continue to shave as regularly as they are now required to do. Consequently it is likely that the demand for shaving soaps will decline to perhaps 75 per cent of its present level.

The increase in textile soaps has been discussed above and as mentioned there, it is likely that the demand will drop off with the reduction in textile requirements for the armed forces.

Production of potash soaps, including liquid, has increased during the war and since this increase is a result of increased industrial activity it is probable that the demand for these soaps will decline somewhat with closing of war plants. This industry has been particularly hard hit by the shortage of coconut oil and it is possible that there has been some movement away from potash soaps because of this difficulty. Whether this market can be recaptured, is not clear. Shampoos which belong in this class of soap have already felt the inroads of synthetic detergents and it is probable that this competition will increase.

THE possibility of synthetic detergents entering the post-war picture in a bigger way is a factor which bears on the demand for soap of all kinds. Packaged synthetic detergents were on the market for several years prior to the war and achieved considerable popularity in the hard water areas for fine fabric use. It is quite likely that these and similar products will enjoy some increase in sales at the expense of fine fabric soaps. Synthetic

TABLE I
Production of Soap by Classes
(Million Pounds)

	1944 (Est.)	1939	1937	1935
Bar soap				
Toilet	500	409.1	360.6	353.0
Laundry				
White	575	660.7	489.0	420.5
Yellow	550	578.8	633.4	713.5
Granulated, powdered and sprayed soaps	1322	892.7	743.2	503.1
Soap chips and flakes				
Packaged	200	284.3	274.3	307.3
Bulk	250	134.3	116.2	151.7
Washing powder				
Packaged	200	131.8	146.9	132.7
Bulk	70	110.4	85.5	86.4
Cleansers and scouring powders containing soap				
Packaged	180	167.4	157.0	196.2
Bulk	20	18.7	21.3	37.4
Shaving soaps				
Stick, powder and cake	10	5.6	5.1	6.2
Cream (soap base)	15	7.9	9.6	6.7
Liquid soap, not including packaged shampoos	50	42.8	29.9	22.6
Soap stock or soap base	2	4.4	4.5	3.7
Bar cleansers	10	5.0	5.4	9.9
Hand pastes	25	17.9	16.9	14.2
Textile soap	90	62.5	60.7	70.1
Potash soap, other than textile and liquid	35	31.0	25.1	20.8

Source: 1935 through 1939 from Census of Manufactures—U. S. Dept. of Com. 1944 Estimated

Note: White floating soap is included in toilet bar and white laundry bar.

detergents have already entered the textile field and for certain operations are preferred over soap, and there is no doubt that their use will be extended in this field.

As to the position of synthetic detergents in the general household field, it is difficult to make accurate predictions at this time. The Army and Navy have so-called all-purpose soaps containing synthetic detergents and find them quite valuable under the conditions met by the armed forces. Whether the consumer will find a need for soaps of this type is questionable. There is certainly no need for this type of soap in soft water areas and what volume will be required for hard water areas is difficult to estimate particularly since many towns have installed or are considering the installation of water softening plants. There has always been a market for hard water and salt water soaps and it is entirely possible that some modification of all-purpose type soap may supplant soaps formerly sold in these territories providing the price is satisfactory. It must be remembered, however, that the old-fashioned hard-water and salt-water soaps were made from coconut oil and if the price of coconut oil declines to prewar levels, it will be very difficult for synthetic detergents at their current prices to compete.

Summarizing the outlook for synthetic detergents, it appears that there may be some increase in their consumption, but that price is a strong factor in their success. It must be recalled that soap fats of domestic origin are primarily by-products from the slaughtering industry and as such under ordinary conditions are priced in accordance with demand for soap making. On the other hand, synthetic detergents are manufactured products from raw materials which have their prices regulated by demands from many other industries and consequently are not potentially strongly competitive with soap fats. It is probably safe to say that while the consumption of synthetic detergents will increase, it is doubtful that they will at their present stage of development make serious inroads on the market for soap.

TABLE II
Consumption of Soap Fats
(Million Pounds)

	Primary Fats (Bur. of Census)	*Secondary Fats (Est.)*	*Total*
1939	1654	124	1778
1940	1723	128	1851
1941	2144	147	2291
1942	1871	164	2035
1943	1704	292	1996
1944 (six months)	978	125	1103

IN attempting to balance the various factors involved in predicting the trend in the soap industry, it appears that there is likely to be between 5 per cent and 10 per cent reduction in the production of civilian soaps soon after the war ends. However, the exact time at which this reduction will occur is difficult to foresee since the stocks of soap in trade channels are still below normal and there are still some trouble spots in the country where real shortages exist. There does not seem to be much chance of completely eliminating these trouble spots during the war. Until the trade stocks have been built up to some semblance of normal, it is probable that consumer demand, not necessarily consumption, will continue at substantially the present rate. It is well known that if the consumer cannot obtain the particular brand of merchandise she desires whenever she goes to the store, she is likely to buy it, regardless of her needs, every time she sees that item. The only cure for this is an adequate trade stock. It has been stated that on V-E Day approximately 40 per cent of the war contracts will be cancelled. If this occurs there will undoubtedly be some unemployment or at least a marked reduction in overtime. With lower employment levels the need for soap will be decreased, as the heavy laundering of work clothes will decrease proportionately to the decrease in employment.

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DRY CLEANING SOAPS

By Andreas Treffler

AS the name indicates, dry cleaning soaps are used in a cleaning process, where water is excluded, even removed and where soaps dissolved in petroleum solvents accomplish the cleaning. Such soaps are, like soluble oils, homogeneous products at temperatures above the melting point of their fatty acids and are soluble in oil as well as in water without any separation, provided they are properly stabilized. Their composition includes one or more emulsifying agents, petroleum solvents, free fatty acids and coupling agents. The object of dry cleaning soaps is the formation of a connection between the oil phase of the petroleum solvent and the water phase of the soil on the garments, which must be removed by taking it up into the interior water phase of the oil soluble soap.

Mineral oil, containing straight hydrocarbon chains, has no affinity to water. It does not even spread readily upon water. By adding a COOH group to the hydrocarbon chain, however, the affinity to water is increased. Oleic acid with a C_{17} carbon chain and one—COOH group spreads upon water to a certain extent. The water soluble—COOH groups of the oleic acid molecules apparently orient themselves so that they dissolve in the water and allow the oil groups on top to spread. Acetic acid, CH_3COOH, with a much higher proportion of oxygen in its molecule, has an even higher affinity to water. It not only spreads, but dissolves completely in water. The principle of chemical affinity similarly explains the behavior of a liquid when brought in contact with a water insoluble substance like the polished surface of a mineral. If a small drop of water is put on the face of a clean diamond, the drop may be rolled about with the point of a pin and will still retain its globular shape. If the diamond is not genuine, an oxidized mineral, for example, or if the water contains an alcohol, the water will spread.

The fibres of clothes, being hygroscopic, usually contain a high percentage of moisture, and therefore have a decreased affinity to petroleum solvents. The relative humidity of the atmosphere controls the percentage of hygroscopic moisture present in textile fibres. The moisture present in wool may vary from 10 per cent to more than 25 per cent. Silk may absorb as much as 30 per cent without feeling the least moist. Organic and inorganic soil particles also include a high amount of moisture. Removing this moisture with the help of soap and alcohol opens the way for the wetting of the fibres by petroleum solvents.

The coupling of the water to the naphtha is accomplished by the following solubility arrangement in a dry cleaning soap:

Naphtha, fatty acid, alcohol, soap, water

In such a compound each ingredient is soluble in two other components of the mixture and if the proper amount of coupling agent is used, a clear homogeneous product is obtained when heated above the melting point of the fatty acid. The amount of alcohol in

TABLE I. Evaluation of dry cleaning soaps by the peptization of lamp black

Experiment A:

	No. 1	*No.* 2	*No.* 3
100 ccm. graduated measuring cylinders	100 ccm.	100 ccm.	100 ccm.
V.M.P. naphtha added as solvent	none	2 gms. triethanolamine linoleate and 1 ccm. linoleic acid	2 gms. triethanolamine linoleate and 1 ccm. oleic acid
Amount of dry cleaning soap added to naphtha			
Lamp black (fine pulver) added	1 gm.	1 gm.	1 gm.
After shaking lamp black settled within 24 hours to volume of	32 ccm.	21 ccm.	18 ccm.
Within 48 hours to volume of	32 ccm.	17 ccm.	15 ccm.

Experiment B:

	No. 1	*No.* 2	*No.* 3	*No.* 4
100 ccm. graduated measuring cylinders	100 ccm.	100 ccm.	100 ccm.	100 ccm.
V.M.P. naphtha added as a solvent	none	1 gm. triethanolamine linoleate and ½ ccm. linoleic acid	1 gm. triethanolamine oleate and ½ ccm. oleic acid	1 gm. triethanolamine stearate and ½ ccm. oleic acid
Amount of dry cleaning soap added to naphtha				
Lamp black (coarse) added	2 gms.	2 gms.	2 gms.	2 gms.
After shaking lamp black settled within 24 or 48 hours to volume of	17 ccm.	13½ ccm.	13 ccm.	18 ccm.
After adding 1 ccm. alcohol and shaking, lamp black settled within 4 hours to	18 ccm.	14 ccm.	14 ccm.	17 ccm.
Within 48 hours to volume of	18 ccm.	14 ccm.	14 ccm.	15 ccm.

this coupling should be at least as high as the amount of water. Upon adding an excess of water, or where a high amount of moisture is absorbed from the garments without adding the necessary amount of alcohol to restore the balance, the soap loses its naphtha solubility and is precipitated out on the fibres during the washing process. For this reason the custom of adding a high excess of alcohol to dry cleaning soaps has become popular. Especially before the war dry cleaning soaps of up to 30 per cent alcohol content were quite commonly offered on the market. Such a high amount of alcohol is necessary only when a small amount of soap is being used with a heavy charge of garments in the washer.

THE peptization of oil and water insoluble particles, like pigments and mineral substances, by means of dry cleaning soaps is the second step in the dry cleaning process. In wet cleaning as well as in dry cleaning, peptized particles have a reduced coefficient of friction, they pass much more easily through the spaces of woven fibres and upon removal from the fibres, they settle down to a much smaller volume. The volume size of such settlings has been taken by the author in experimental studies on the comparative efficiency of various dry cleaning soaps as a direct indication of the reduction in friction and of the value of these soaps. An oleic acid soap, for example, would seem to make a better dry cleaning soap than a linseed oil fatty acid soap or a stearic acid soap, to judge from the findings of experimental work reported in Table I. The triethanolamine oleate in cylinder 3 of both experiments lubricates and peptizes the surface of the lamp black particles better than the soap in cylinders 2 and 4.

The result is a better settling, an easier removal of the soap from textile fibres and therefore a better cleaning. The high titre of stearic acid soaps renders them insoluble in naphtha solution at room temperature. The bulk of the pigment may thus increase rather than decrease. The addition of alcohol in experiment B relieves the interfacial tension between stearates and naphtha and brings out the value and the lubricating action of stearates.

In this case alcohol does not improve the lubrication of oleates and linoleates. The bulk of lamp black increases somewhat, for increased solubility of soap, gained by the addition of alcohol, seems to be obtained at the expense of its lubricating and peptizing action. This effect can be observed by using a liquid toilet soap diluted with a high amount of alcohol.

The highest detergent value of a soap in dry cleaning as well as in wet cleaning is found near the border line of solubility and insolubility. The presence of three alcohol groups in the triethanolamine molecule eliminates in low titre soaps the addition of fatty acid and alcohol as coupling agents in naphtha soap. This can be proven by adding in experiment B only the corresponding 1 gm. soap to the 2 gms. lamp black in the 100 ccm. naphtha solution in cylinders Nos. 1, 2, 3 and 4 and after shaking the settling within two hours is as follows:

Cylinder	1	2	3	4
After adding the corresponding ½ ccm fatty acid and shaking, the settling within two hours is.....	18 ccm 17½ ccm	12½ ccm 14 ccm	11½ ccm 14 ccm	29 ccm 21 ccm

Triethanolamine stearate, insoluble in naphtha, settled out and increased the bulk of lamp black. The addition of ½ cc. oleic acid coupled the soap somewhat and decreased the bulk. The low titre soaps gave better lubrication without their corresponding fatty acid and without alcohol. Fatty acid and alcohol without soap did not improve

the settling of lamp black. The combination is therefore not a lubricant, but only a coupling and wetting agent. Triethanolamine stearates turn soluble in naphtha, when heated above room temperature. At higher temperatures and in warmer climates high titre soaps are therefore more soluble, and require less alcohol and fatty acid as coupling agents.

In drawing conclusions from experiment B, the following rule should be observed in compounding dry cleaning soaps. Straight stearic soaps are not used as they require a high amount of alcohol and a low titre fatty acid as coupling agent. Soaps, made from low titre fatty acids, like oleic acid and vegetable oil fatty acids, have a greater affinity to naphtha and on account of their higher solubility they are not so easily precipitated out on the fibre, if the amount of moisture taken up by the soap should be high enough to cause a break. This observation appears to leave the door wide open for the use of deodorized tall oils in dry cleaning soaps.

Any clear soluble oil can be used as dry cleaning soap, but not every dry cleaning soap can be used as a soluble oil. The low boiling alcohol, exposed to air, when diluted with water would evaporate and cause a break. A high boiling alcohol is used therefore in soluble oils. The concentration of the soap base in both compounds toward the mineral oil or the naphtha is of greatest importance upon dissolving in water. If both are perfectly stabilized and contain about 15-20 per cent soap base, 80-85 per cent mineral oil or naphtha, they are completely soluble in any amount of water. Petroleum solvents should not take up such an oil-in-water emulsion. Only more dry cleaning soap base or a high amount of alcohol should remove this interfacial tension and restore the interior water phase of the naphtha solution.

The neutralization of the fatty acids in dry cleaning soaps causes a similar break in the soap as the addition of an excess of water. Naphtha solutions, saturated with impurities and pigments can be purified by adding the necessary amount of concentrated caustic potash solution to neutralize the free fatty acid by thorough mixing. The soap-fatty acid film covering the pigments is turned into a soap film, looses every coupling with the naphtha solution and the pigment settles out within a very short time.

THE compounding of dry cleaning soaps is comparatively simple. The fatty acids are heated in a steam jacketed kettle somewhat above their melting point and kept above their melting point until all other ingredients are added and dissolved properly under stirring. The slow agitation is continued until the stearic acid in the fatty acid mixture starts to cloud up the solution, especially on top. At this point the solution is run into containers, where further cooling turns the solution into a creamy paste, which has more or less a pearly sheen proportional with the amount of stearic acid present in the soap. The amount of naphtha in the soap is of minor importance, provided the soap is otherwise properly stabilized. High shipping costs have been responsible for a reduction in the percentage of naphtha in several brands to only a small fraction. One-third of the total fatty acid content is usually unsaponified and serves as coupling agent. The caustic potash is added as a concentrated 45-50 per cent solution and can be mixed with the alcohol before adding. For the convenience of the soap maker, in Table II a list is given of several formulas which have been used, especially before the war, when no restrictions hampered the production and quality of these soaps.

The amount of water, it will be noted, is kept as low as possible, and as a rule the caustic potash is dissolved in the smallest amount of water possible. But in removing certain spots, especially from substances which are soluble in water or alcohol, it is of advantage to have a higher amount of water and alcohol in the interior phase of the dry cleaning soap. Formula 5 represents such a compound, containing about 16 per cent water and as alcohol 26.90 per cent hexalin. Synthetic detergents and emulsifying agents have also been tried out. Formula 6 contains a sulfonated alcohol and has a transparent syrup-like consistency. Other compositions contain up to 30 per cent ethyl, isopropyl and butyl alcohol, 15-25 per cent water, 20-30 per cent V. M. P. naphtha and amyl acetate and 20-30 per cent sodium oleate. Their high alcohol content reduces the pressure in the filter by taking up the water from precipitated soap sludge. This reduces interfacial tension and puts such soap back into circulation again. Triethanolamine is used in many higher priced soaps and spotters. Its use for saponifying fatty acids eliminates the addition of water entirely and as its molecule contains alcohol groups, it can also be regarded as a coupling agent.

Pure dry alcohol can be used safely as a dry cleaning solvent, but as garments usually contain moisture, the alcohol will be diluted more or less with water and such a combination may cause swelling of the fibre. Alcohol may also attack colors when applied directly to dyed silks and rayons. As an ingredient in a dry cleaning soap which is highly diluted with naphtha in the washer, the action of alcohol is not detrimental and can only be stimulating to the cleaning

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TABLE II. Composition of dry cleaning soaps

Formula	*No. 1*	*No. 2*	*No. 3*	*No. 4*	*No. 5*	*No. 6*
Tallow, fatty acids	23.0%	28.8%				
Cottonseed, fatty acids			32.1%			
Oleic acid			23.7	47.5%	25.8%	14.6
Mineral oil	10.0	10.0				
Varnolene	57.1	50.0	27.1	18.3		60.3
V.M.P. Naphtha					12.7	
High Flash Naphtha					16.7	
KOH, flakes	3.2	3.75	5.5	4.5	1.2	
NaOH 30° Bé						6.4
NH_4OH 26° Bé				2.6	3.1	1.0
H_2O	3.2	3.85	6.4	4.6	13.6	3.0
Hexalin					26.9	4.8
Alcohol, denat.	3.5	3.6	5.2	5.0		4.8
Ca-stearate				17.5		
Avitex, sulf. alcohol						5.1

SOAP RATIONING in BRITAIN

By Paul I. Smith

UNDER the Soap (Licensing of Manufacturers and Rationing) Order of 1942, every holder of a ration document is entitled to draw certain stated amounts of soap per coupon, and there are 4 coupons per 4-weekly periods; each week being officially defined as a period of 7 days ending at midnight on any Saturday. The amount of soap for the domestic soap ration varies according to the type and quality of soap, and the official descriptions are as follows:

4 oz. hard soap or 3 oz. toilet soap. According to the Order dated July, 1944, which re-enacts the original regulation of 1942, "hard" and "toilet" soaps mean soap (other than abrasive soap, dental soap (dentifrice), liquid soap, shampoo soap, shaving soap, soap flakes or chips, soap powder and soft soap) containing respectively less than 70 per cent of fatty and resin acids (in the case of hard soap) and 70 per cent or more fatty and resin acids (in the case of toilet soap).

or

6 oz. soft soap. Here, strangely enough, there is no official interpretation.

or

½ pint No. 1 liquid soap, or 1 pint No. 2 liquid soap. The definition of the No. 1 grade is a liquid soap containing more than 12½ per cent fatty acids, and, for the second quality, a liquid soap containing 12½ per cent or less of fatty acids.

or

6 oz. No. 1 soap powder or 12 oz. No. 2 soap powder. The first means soap powder (other than shampoo powder) containing more than 28 per cent but not more than 56 per cent anhydrous soap, and the No. 2 grade more than 6 per cent but not more than 28 per cent anhydrous soap.

or

3 oz. soap flakes or chips (or soap powder) containing more than 56 per cent anhydrous soap.

In addition to the basic ration as set out above, infants under one year may receive one additional ration of soap per week, and persons engaged in particularly dirty work can, if they satisfy the authorities, secure special permits to cover extra amounts of soap.

The Ministry of Food, which is the Government Department responsible for the general organization, supervision and enforcement of the 1944 Order, has a difficult job on hand. First of all it must supervise the quality of soap produced and see that it is properly graded. Here it is provided that certificates of a public analyst or Government chemist shall prove themselves unless challenged. Secondly, the Ministry must ensure that distribution to retailers is properly organized and scrupulously fair. Thirdly it must make perfectly certain that every holder of an approved ration document obtains neither more nor less than the amount of soap specified in the order. It should, perhaps, be pointed out that, except under and in accordance with the terms of a license granted by the Ministry, no person is allowed to engage in the manufacture or pre-packing of soap products.

It will be realized that to carry out all the provisions of the order, comprehensive as it is and with several loopholes for unscrupulous traders, calls for a considerable staff and organization. The Ministry cannot afford to interpret the regulations too rigidly and the soap order has been quietly grafted on to the organization already handling all essential foodstuffs, and handling them well. There is no doubt that British soap rationing is fairly elastic and a certain amount of discretion appears to be exercised by the authorities in the interpretation of the various articles of the order.

I have made a careful survey of British soap rationing and the following conclusions are those I consider the most important:—

1. Every person holding an approved ration document obtains an allotment of some kind of soap, but not necessarily the type or quality required.

2. In London and the Southern towns there is plenty of hard soap and lesser known brands of toilet soap in the shops, but a marked shortage of soap powders, particularly No. 1 grade. flakes and chips.

3. In other parts of industrial England, especially the North, retailers carry very little surplus, and because of the dirty nature of the work carried out in such towns as Manchester, Liverpool, Birmingham, Coventry, Wolverhampton, etc., all types of soap are drawn to the limit of the ration, and soap powders, even No. 2 grade, are difficult to secure.

4. In the rural and provincial areas the smaller type grocers and druggists carry fairly large stocks of soap, and even No. 1 soap powders can be obtained without much difficulty in some areas. This is mainly due, particularly in rural areas, to the fact that soap rations are under-drawn or else retailers held a very large stock of all grades of soap prior to soap rationing.

5. Shortage of popular lines of toilet soap, soap powders and flakes tends to encourage discrimination of sales and there is a good deal of objectionable under-the-counter business.

6. There is a tendency for wholesalers to unload No. 2 soap powders on retailers as part of their quota of No. 1 grades, and, generally speaking, the No. 2 powders are unpopular on account of their low soap content.

It should be pointed out that these No. 2 powders are mostly produced by jobbers, not by well known manufacturers, and there are on the market at the moment a number of "minimum" brands, that is, makes which comply only with the minimum requirements of the order.

Summing up, it can be said that the weakness of the present rationing order is that while there is fair distribution of the quantity of soap allowed each person, there is some mal-distribution of types or qualities. The average British housewife living in an industrial area of London or the North, finds it extremely difficult to secure a regular supply of No. 1 grade powders. While some retailers try their best to distribute supplies fairly, others, and unfortunately there are many of these, discriminate unfairly, and the best paying customers get the most of the No. 1 grade soap products.

Retailers are pretty unanimous in admitting that soap has proved one of the least troublesome materials to handle from the official angle as there are no coupons to cut out of the ration book, and all that is necessary is the franking of the numbers set in panels at the back of the book. On the other hand, retailers are not slow in stating that something seems to have gone wrong regarding the distribution of soap qualities, and they are of the opinion that the discrepancy in quality between the No. 1 and No. 2 grades is far too great and that it encourages unscrupulous traders to exploit the public.

THOUGH the threat of soap rationing in the United States would seem now to be rather definitely behind us, soap manufacturers continue to speculate on how the problem might have been worked out had we ever had to face it. Thinking that a review of the record of soap rationing in Great Britain might offer considerable of interest to American soap makers, we have asked our London correspondent, Paul I. Smith, to prepare the accompanying story which reviews the experience of the British people and British soap makers with the difficult problems of soap rationing.

On the whole it can be said that the record of British soap rationing has been good, but not too good. Its main weakness, as I see it, is that it has encouraged small jobbing firms to produce a considerable volume of low soap content products, and there is a tendency for the public to be exploited by soapers anxious to cash-in on a temporary shortage. It is noticeable that really well known soap manufacturers have generally kept clear of these lower grade soaps and been content to allow the smaller fry to make the "easy money."

This weakness could be remedied to a large extent by firm action on the part of the Ministry, probably on the following lines:—

1. By threat of withdrawing manufacturer's licenses for manufacture or re-packing where there is evidence that products are being produced with minimum soap contents.

2. By increasing the soap content of No. 2 grade soap preparations.

3. By closer supervision of existing distribution of these lower grade products so as to ensure that unpopular grades are not unloaded on to the smaller retailers in preference to the higher quality materials.

4. By censoring the descriptive matter on packages of No. 2 soaps so as to make certain that deliberate attempts are not made to mislead the public as to the detergent ability of low soap content washing powders.★★

Asks Higher Soap Price Ceilings

We are in receipt of a recent letter from A. G. Dietrich of J. Dietrich & Co., San Antonio, Texas, which calls attention to the present plight of the small soap maker. His own firm, says Mr. Dietrich, is faced by greatly increased costs on practically everything they buy, while at the same time ceiling prices on sales of soap are held down to a level which makes it impossible for them to operate at a profit. "It has come to the point," says Mr. Dietrich, "where it is no longer profitable to manufacture soap. We cannot continue without relief, but for us to try for relief by a method that will shunt us from bureau to bureau, from regional OPA office to some other regional office, and then to Washington, and then in reverse, is too long a route for us to survive."

"At the time ceiling prices were frozen," Mr. Dietrich points out, "we were selling our soap based on oils and fats previously bought from two cents to four cents cheaper than we paid later." He points out that when price control went into effect, selling prices on their finished soaps were based on 6c coconut oil, as compared with today's market of 12c, including tax, when coconut oil is available. Rosin, he points out, was priced at $3.81 per cwt. two years ago, as compared with current quotation of $6.60 per cwt. The price of soap boxes has advanced $20 per thousand, servicing charges for trucks and motors are up 50 per cent, replacement machinery parts are sharply higher in price, taxes are way up and labor costs have increased tre-

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The Market For Better Grade

TOILET SOAPS

"SOAP, Soap . . . beautiful soap" chants the headline paraphrase of the childhood "Snow" rhyme in a recent half-page newspaper advertisement of R. H. Macy & Co., New York, in the *New York Times*, on behalf of Macy's line of better hand and bath soaps. This was the beginning of an active advertising and sales promotion campaign by Macy designed to promote high quality soaps. This sort of advertising of luxury soaps has had to be muted somewhat for the last few years because of the war and the soap shortage, but now with all soaps in generally better supply, more of this type of advertising is beginning to appear.

On the heels of the Macy advertisement for better quality soaps, which have been growing in number and volume in the past ten years, came other advertisements. Two were from a pair of New York's finest shops: Bonwit Teller and Jay Thorpe. Although smaller than the Macy advertisement, they were fairly dominant. Both featured trios of bath soaps in gift boxes to retail for $2.75 and $1.50. Macy's advertisement showed six different brands of soap which were packaged in both hand and bath styles. The price range was from a dollar to $1.50 for three cakes.

This growing tendency to promote the sale of finer soaps in today's booming market for all luxury products is not confined to New York, either, according to one manufacturer, who recently ran a large advertisement in the magazine section of the Sunday *New York Times*. The trend, he pointed out, and it is confirmed by other manufacturers and retailers alike, is toward the promotion of finer soaps. The acceptance on the part of the consumer of better quality soaps both for gifts and personal, every-day use has expanded considerably in the past ten years, and more particularly in the past three or four years. The distribution of fine soaps through a greatly increased number and type of retail outlets has probably been responsible for the growth in sales volume, although consumer demand exerts great pressure on distribution. Which is the more important factor seems to be a moot question, although both play a part. In the case of the increased sale of fine soaps the rise in consumer acceptance and the number of retail stores selling the product have apparently closely paralleled each other.

An advantage that many of the better quality soaps have had in gaining widespread distribution is their sale under nationally advertised and therefore widely known toiletries and cosmetic house trade names. For instance there are soaps carrying such famous names as: Lucien Lelong, Prince Matchabelli, Harriet Hubbard Ayer, Ann Haviland, Charles of the Ritz, Chanel, Herb Farm Shop, Helena Rubinstein, Shulton, House of Gourielli, Bourjois, Charbert, Du Barry, Dorothy Gray, Lentheric, Houbigant, etc. Macy's large advertisement featured "Old Herbary," Prince Matchabelli, Lucien Lelong and Harriet Hubbard Ayer soaps from the cosmetic and beauty preparation field. However, there are numerous producers and distributors in the better quality soap field, strictly soap makers, who have also done a national advertising job and who have achieved a broad national distribution for their products in a variety of types of retail stores. Wrisley, Roger & Gallet and Mem, to mention a few, fall into this category. The cosmetic and beauty preparation group, however, outnumber the straight soap specialists in the high priced soap field and have been a big help in enlarging the wedge of broader distribution originally inserted by the advertising and promotion efforts of the strictly soap manufacturers.

Because of the use in the sale of soap of such nationally known cosmetic trade marks, as those enumerated above, more stores have found it profitable to sell these soap products in both toilet goods and, where they existed, soap departments or sections. In addition, beauty preparation manufacturers have lately gone into combining soaps with their toilet water, powder and/or perfume gift packages. These impressive surroundings for soap have created a favorable impression on the buying public, so much so, in fact, that more and more finer soaps are being handsomely packaged and sold for better prices. They become part of a line or ensemble, and as such receive considerably increased sales appeal.

Two other factors have considerably influenced this whole market in recent years. The war cut off the prewar German and French importations and left a gap that American manufacturer's have been quick to fill with high quality products of their own. Novelty soaps in a bewildering variety of sizes, shapes and styles have given the better soap field a dramatic and human interest feature or appeal that has brought it forcefully to the attention of the customer. These novelty soaps have naturally found a ready market as gifts for children, coming

as they do in the shape of animals, automobiles, hands, hearts, candy, flowers, balls, etc. Besides coming in appealing and interesting shapes themselves, the soaps are originally and ingeniously packaged to stimulate their sale.

Another feature of the current merchandising efforts on behalf of better soaps that strikes the observer immediately is the greatly increased amount of display space that soaps of this sort occupy. In the New York market there seems to be more display space given over to better quality, higher priced soaps this year than say last year; surely more than two years ago. This is true whether in department, drug or beauty preparation specialty shops. Window displays, particularly in the ubiquitous drug store, are devoted in some cases entirely, or often in great part, to quality soaps. With the approach of the Christmas shopping season, more and more soaps are being shown in gift windows, although even before the Christmas shopping season opened, soap was displayed in many windows. Speaking of drug stores, while individually they probably don't match the larger department stores in volume, their combined sales volume unquestionably exceeds that of the department stores.

Apart from drug windows, interior displays or sectionalization of merchandise in drug stores cannot be compared with those of the department stores. This is basically a question of having sufficient floor space to departmentalize merchandise. The department store of major importance in a large city usually has a good sized cosmetic, toilet goods or beauty preparation department. In addition, more and more stores are setting up special counters or departments for the sale of their soaps. In these the better soaps are usually dominant. At least six of New York's leading department stores have soap sections: Lord & Taylor, Macy's, Altman, Gimbel's, McCreery and Arnold Constable. Since all of these departments or sections are located on the main floor, considerable volume is derived from heavy main floor traffic. Displays, both in the counter cases and in the dioramas behind the counters feature the attention-getting novelties, although the ordinary bath and hand soaps also find their way into these displays. In cases where a line consists of a number of items, such as the Shulton group, more display space is given, and in at least two stores counter ends are devoted to nothing but that line. The advantage to this type of display is that in cases where there are a number of items to a line, it is much easier to build up a total sale by suggesting matching items in the ensemble.

FINE soap makers consider themselves "specialists" in that they do not go in for anything like the mass production achieved by soaps selling in the lower price ranges for "popular" consumption. And, apparently, for the most part, the large soapers do not feel as though they could profitably combine the production of finer soaps with their mass output of lower priced soaps. An exception to this might be the "Omnibus" three-cake soap package of Procter & Gamble that retails for 50c. It seems to be distributed a bit more widely recently in retail stores that do not handle other P. & G. lines, which may or may not indicate any further interest in the better soap market on P. & G.'s part. At a time when raw materials and labor are in short supply, it seems rather unlikely that the company will turn to anything new on a very broad scale.

The raw material and manpower shortage has of course been a big problem for the makers of better quality soaps, and has resulted in the need for changed soap formulae, as in the lower end groups. The manpower shortage and paper and paper box situation are fairly critical for quality soap manufacturers, although not having the huge demand for materials that the larger producers do, they are probably comparatively better off. In his requirements for soap making oils, the manufacturer of smaller quantities of the higher priced soaps has a chance to purchase the smaller quantities of palm and coconut oil that do become available. With the available supply often too small to interest the large user group, he often has a better chance at these limited quantities of raw materials. On his perfuming materials, approximately the same thing is true. The demand for the higher priced perfuming oils is not as great among the large quantity users as it is for the cheaper materials, and thus more is available of the more expensive materials proportionately.

The types of gift soaps which are most popular seem to be the gift boxes containing about three or four cakes of the hand or bath size soap. Cakes are sculptured, embossed or smooth, in oval or rounded rectangular shapes. The average price in the hand size cake is about $1.25, with three bath cakes averaging $1.50 to $1.75. Sets varying in elaborateness of package design and content range from something over two dollars to one extremely fancy gift box that sells for $10. The average gift package, usually of the toiletries variety, and containing one or two cakes of soap, would probably be about $3.85.

Soap novelties of the four pigs in a gaily decorated box made by Kerk Guild, New York, retail for about 94c or a dollar, as do the "Soap Angels" of Helena Rubinstein, the soap lady in the hoop skirt by the House of Gordon, of Chicago, or the "Bunny Bandit" in castile soap by Kerk Guild. Novel in shape and finish are hand size House of Gordon soap cakes that have a wool-like design, four of which retail for 94c. Macy's, which refers to its "imposing collection of famous brand soaps" as a "soap collector's paradise," features "Myrurgia" and "Barcenola" imported soaps, besides its wide range of domestic soaps. One of the most distinctive (in appearance) soaps is the Prince Matchabelli group: "Abano" and "Dutchess of York," which are in the shape of the crown that has come to be identified with the Matchabelli line. The Matchabelli soaps in the hand size retail at $1.25 for a box of three, while the bath size box retails for $2.

In addition to the regular retail outlets where soaps are sold: drug and department and gift stores, there is another type of shop—the beauty or cosmetic specialty shop. These are usually exclusively maintained by the firm whose brand name they carry.

Thus, Yardley, Charles of the Ritz, House of Gourielli, Helena Rubinstein, Dorothy Gray, Elizabeth Arden, Coty, etc., sell fine soap products from their own retail shops. Sometimes these stores are beauty salons, whereas others are straight retail specialty shops. Usually, a wholesale department is maintained in the same or in an adjoining building.

One other marketing factor that has been of increasing importance from the point of view of the whole better soap market is the recent growth and popularity of soaps for men. This type of product has gone beyond the shaving cream, bowl or stick stage and now features fine soap and soap combinations for men. One firm specializing very successfully in the men's field is Mem Inc., New York, who have as part of their trade mark the words: "Toiletries for Men." Mem recently used a large advertisement in the *New York Times* Sunday magazine section under the heading: "Distinguished Men's Gifts" to promote its gift sets. One of these consisted of two large cakes of soap and a bottle of cologne and after shave lotion. The set was packed in a "red wood box," the fittings on the bottles being large bulbous wood caps that give them a decidedly masculine flavor. These Mem gift sets run from $3.50 to $7.50, with individual items running from $1.25 to $6.00. Mem augments its newspaper advertising with advertising in several of the leading nationally circulating magazines. The whole idea of men's soaps and toiletries has been given a terrific boost by the war and the desire on the part of the "folks back home" to send the boy in camp or overseas some attractive and useful gift. Quality soaps, especially designed for men, or gift packages containing a masculine soap seem to have been a very adequate answer.★★

A continuous process is used for refining a gum-containing oil in which a sufficiently high temperature of an aqueous oil mixture is used to coagulate the gums. An aqueous acid liquid is mixed with the oil to form a mixture at a pH of about 3-5, and an advancing stream of the oil is cooled and subjected to a decreasing agitation. The purified oil is separated by a centrifugal treatment. P. D. Boone. U. S. Patent No. 2,351,184.

TURNER
CHEMICALS

CAUSTIC SODA
PERSULPHATE OF POTASH
PERSULPHATE OF AMMONIA

JOSEPH TURNER & COMPANY

RIDGEFIELD, NEW JERSEY

83 Exchange Place, Providence, R. I.

435 N. Michigan Ave., Chicago 11, Ill.

TRADE NEWS. . . .

Tyriver "Sweetheart" Sales Mgr.

Robert E. Tyriver, formerly division sales manager for Colgate-Palmolive-Peet Co., has just been ap-

ROBERT E. TYRIVER

pointed general sales manager of Manhattan Soap Co., New York, makers of "Sweetheart" soap.

N. Y. BIMS Dinner Jan. 25

BIMS of New York will hold their annual dinner at the Hotel Lafayette, New York, on Thursday evening, January 25th, according to an announcement by Martin Schultes of Hewitt Soap Co., chairman of the New York group. Owing to the limited facilities of the Hotel Lafayette, long famous for its French cuisine, said Mr. Schultes, the dinner will have to be held to 150 persons. Reservations necessarily must be made early in order to assure members who plan to attend this annual event of the BIMS of places. Members will be permitted to bring guests, Mr. Schultes stated, to the extent of available facilities.

Lenth Opens Consulting Offices

Dr. C. W. Lenth, formerly chief of the Soaps and Glycerine Division, Fats and Oils Section of the War Food Administration, who resigned this position in September of this year, has just opened offices as a chemical consultant at 400 West Madison Street, Chicago. He will specialize in consulting work on soap and glycerine, and will undertake patent studies as well as organization and supervision of research on problems in these fields.

Bronner Joins Chicago Sanitary

Dr. E. H. Bronner, formerly a consultant to Allen B. Wrisley Co., Chicago, has recently joined Chicago Sanitary Products Co., Chicago, as technical director and research chemist.

P&G New Canadian Plant

The Procter & Gamble Company of Canada, Limited, announce that contracts have been let for the construction of an addition to their manufacturing plant at Hamilton, Ontario. The addition will embody latest improvements in manufacturing equipment and will enable the company materially to increase its production. The W. H. Cooper Construction Co., Ltd., of Hamilton, has been awarded the contract for the construction of the new buildings and work will get under way immediately. The original plant at Hamilton was constructed in 1915.

Caleb Johnson's Daughter Dies

Mrs. Margaret J. Massee, daughter of the late Caleb E. Johnson, founder of Palmolive Soap Company, died November 12 at her home near Jacksonville, Fla.

TGA Advances Executives

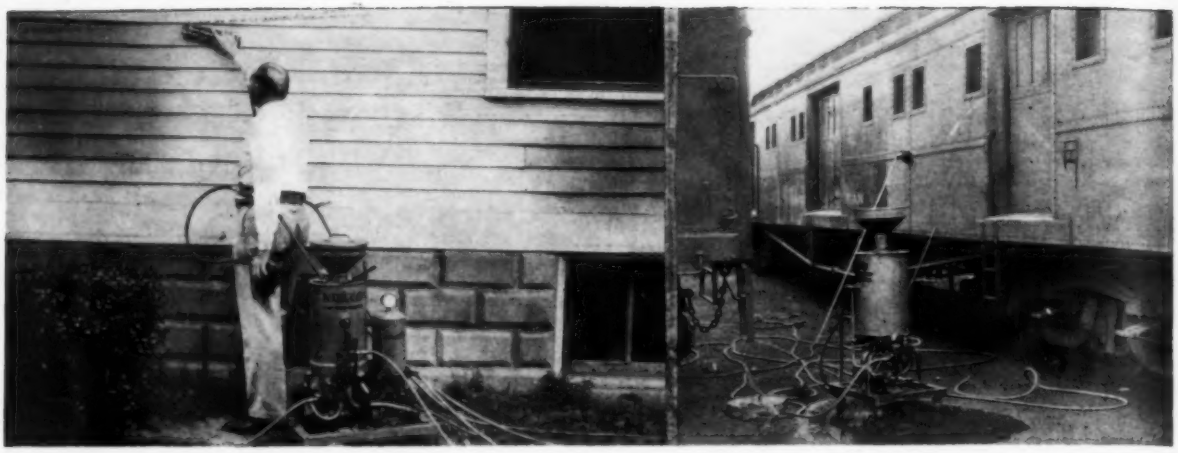
S. L. Mayham, executive secretary of the Toilet Goods Association since 1939, was advanced to the position of executive vice-president at a recent meeting of the board of directors. H. D. Goulden, formerly director of the board of standards, has been designated director of scientific research and standards. Henry Etsch has been appointed assistant secretary of the association.

Organize Essential Chemicals Co.

Essential Chemicals Co. has just been organized by James Wheeler, E. O. Grunitz and E. J. Redmond at 3286

JAMES WHEELER

North 33rd St., Milwaukee, the new firm having purchased the soap and soap powder division of Hercules Powder Co. The principals in the new firm are all former employees of the Industrial Chemical Division of Hercules, and the business will be continued by them without interruption. Mr. Redmond who was in charge of manufacturing and research for Hercules will continue these same duties and will also serve as secretary-treasurer of Essential Chemicals. Mr. Grunitz, a former Hercules salesman, will be vice-president, and Mr. Wheeler who was formerly in charge of the Industrial Chemical Division for Hercules will be president of the new concern. Essential Chemicals Co. will manufacture soap, soap powders, cleaners and general sanitation products — specializing in potash soaps. The company will continue its former policy of selling through distributors. Manufacturing will continue to be taken care of by the Hercules Powder Co. for a short period while the new organization is moving into its new quarters and installing equipment.



Typical applications of new Nielco cleaning unit

Develop New Cleaning Unit

Nielco Laboratories, Detroit, have developed a new compact portable cleaning unit which is said to reduce waste in labor and to effect substantial reductions in cleaning costs. It is adapted for use in cleaning railroad cars, storage tanks, buses, painted surfaces of all types, glazed brick and tile surfaces, etc. The unit consists of a frame on which are mounted a pump, motor, pressure tank and mixing tank for the cleaning solution. Total weight is 135 lbs. and overall height 28 inches. The hopper holds ten pounds of cleaning compound, said to be sufficient for a full day's operation. It supplies a constant, readily controllable flow of fresh cleaning solution as well as clean rinsing water.

Book Lists Glycerine Uses

A new booklet detailing the many uses of glycerine in different fields has just been issued by the Glycerine Producers' Association, 11 West 42nd St., New York City. It lists 1,583 uses for glycerine and indicates that there are few industries which do not at some point or another make use of this almost universal and in many applications unreplaceable chemical raw material.

USO Big Soap Buyer

The USO has bought 1¼ million bars of soap, over a recent 12-month period, according to O. A. Card of the USO Purchasing Department. The soap is used by service men and women in USO clubs, lounges and other operations.

California Cosmetic Assn. Meets

A meeting of the associate members of the California Cosmetic Association was held at luncheon at Lindy's in Los Angeles recently, with Leonard Katz, vice-president of Florasynth Laboratories, Inc., and Chairman of the Associate Members of the California Cosmetic Association, presiding. Problems of the industry that have a direct bearing on the industries represented in the associate membership were discussed with an eye to future operations.

Brooker Leaves Cowles Detergent

W. J. Brooker formerly assistant sales manager of Cowles Detergent Co., Cleveland, and associated with that company for the past 23 years, resigned recently and moved to the West Coast where he is engaged in the tire and automotive supply business with his brother.

Pkg. Machinery Mfrs. Elect

Members of the Packaging Machinery Manufacturers Institute held their annual meeting at the Hotel New Yorker, New York City, last month, and elected the following officers for the coming year: president—Frank B. Fairbanks, Horix Manufacturing Co., Pittsburgh; vice president—H. Lyle Greene, J. L. Ferguson Co., Joliet, Ill.; vice president—George A. Mohlman, Package Machinery Co., Springfield, Mass.

Pkg. Mfrs. Survey Market

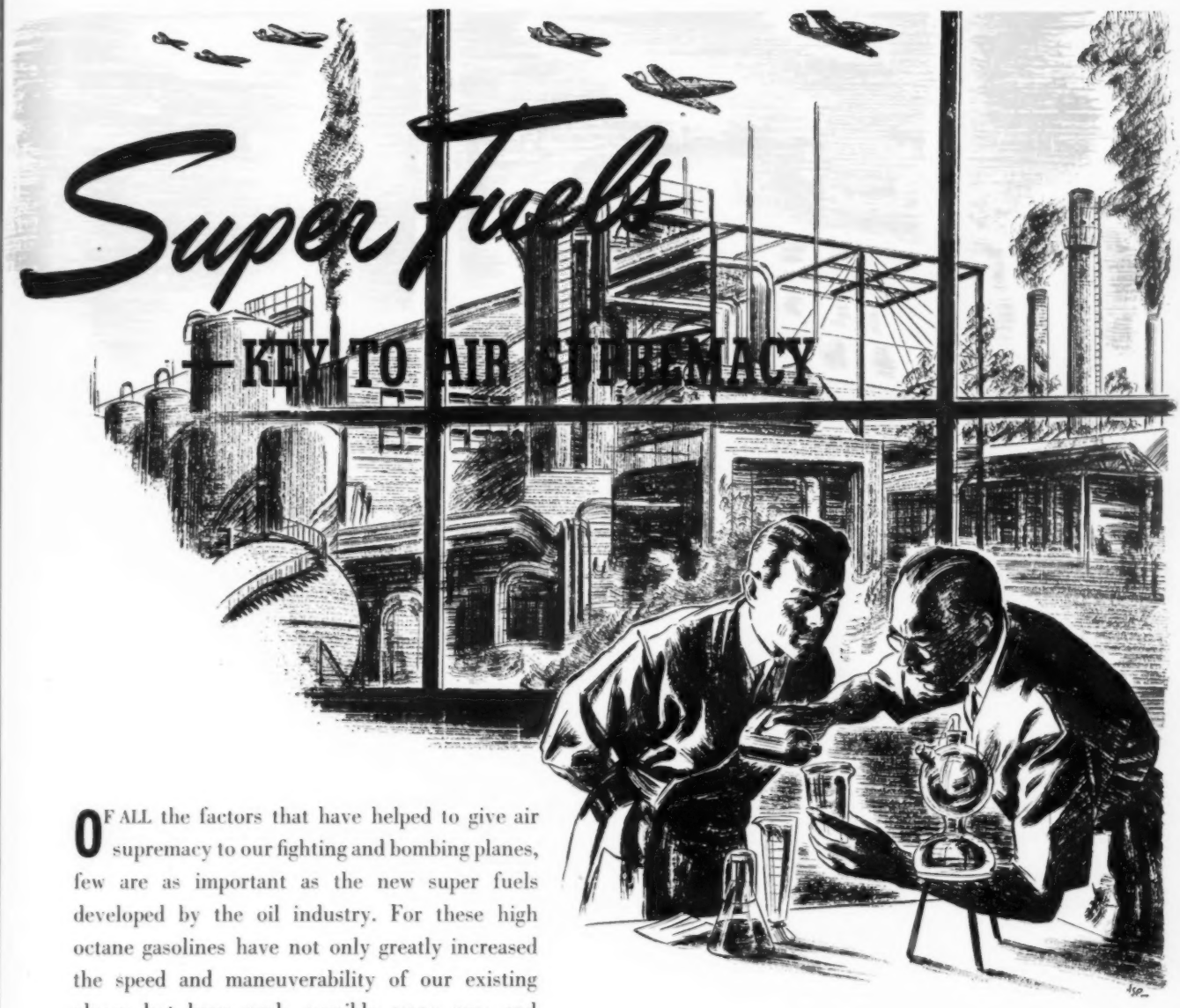
The Post-War Planning Committee of the National Paper Box Manufecturers Association has recently issued a Post-War Survey of the Packaging Possibilities of the Soap and Cosmetics Industry. The results of the survey indicate that few if any new post-war products may be expected from the soap industry. A falling off in sales volume is anticipated during the first year after the end of the war, with a quick recovery and a general upward trend following. New automatic machinery is anticipated for the manufacture of soap specialties, and it is expected that there will be increased use of electronics for sorting and grading, as well as expanded use of automatic control of tube and bottle filling machinery. An increased use of plastics in packaging is anticipated, and the prospect seems to be that many glass containers, adopted as a war time expedient, may also be retained.

Review Air Deodorants

A review of recent developments and new products in the field of air reodorization is contained in an article "Deodorizing the Air," which appears in the November, 1944 issue of *The Givaudanian*, house magazine of Givaudan-Delawanna, Inc., New York. Copies are available.

No More Lard for Soap

No lard or rendered pork fat purchased after November 12 may be used in making soap, under the provisions of a recent amendment to WFO-42b issued last month.



OF ALL the factors that have helped to give air supremacy to our fighting and bombing planes, few are as important as the new super fuels developed by the oil industry. For these high octane gasolines have not only greatly increased the speed and maneuverability of our existing planes but have made possible many new and revolutionary improvements in aviation motors and aeronautical designs.

But super fuels are not merely war developments. They are products of years of research in which scientists worked patiently and painstakingly to perfect the methods and materials by which they could be produced on a large scale economically. To these pioneers who laid the ground-work, as well as to the men whose efforts made the final production possible, should go a generous share of the credit. For they provided that priceless "Margin of Experience" in which the ultimate success was achieved.

• • •

In every field of science, commerce and industry, this "Margin of Experience" proves again and again to be a factor vital to success. Niagara offers it in the field of electro-chemical products. For Niagara has pioneered constantly in the development, improvement and adaptation to new uses of Liquid Chlorine, Caustic Potash, Caustic Soda, Paradichlorobenzene and Carbonate of Potash. Rely on Niagara's "Margin of Experience" for greater success in the use of these products.

AN ESSENTIAL PART OF AMERICA'S GREAT CHEMICAL ENTERPRISE

Niagara **ALKALI COMPANY**

60 East 42nd Street, New York 17, N. Y.

CAUSTIC POTASH • CAUSTIC SODA • PARADICHLOROBENZENE
CARBONATE OF POTASH • LIQUID CHLORINE

ADVENTURES IN THE "MARGIN OF EXPERIENCE"

They're Going Overboard For Victory—Are YOU?

USE 8-POINT PLAN FOR AN OVERBOARD DRIVE IN THE 6th WAR LOAN!

NOV. 20th TO DEC. 16th

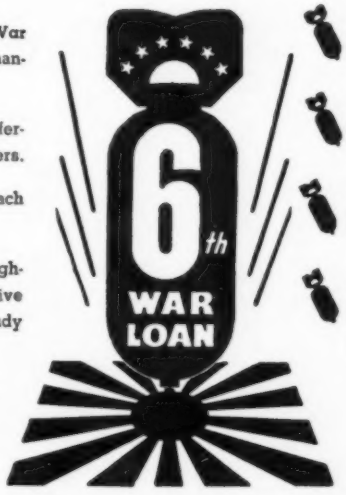
Our fighting men still have a long way to go! But—your plant-wide selling of the 6th can do much to shorten their embattled miles—lessen the price they so willingly pay for victory! Join the coast to coast parade of patriotic firms that are assuring an **"overboard" showing in the 6th** by following through on **every** point in the 8-Point Plan.

Start the ball rolling by appointing a **6th War Loan Bond Committee,** representing labor, management and other groups.

Carry on by selecting a **Team Captain**—preferably a returned veteran—for every 10 workers.

Right at the start, establish a **Quota** for each department—and every employee.

Arrange frequent **Meetings of Captains,** highlighting importance of their work—effective sales methods—and need for painstaking study of **Treasury Booklet, Getting The Order.**



Make definite Assignments to those best equipped to arrange music, speeches, rallies, competitive progress boards and meeting schedules.

Issue Individual Pledge Cards—made out in the name of each worker and providing for both cash and installment purchase.

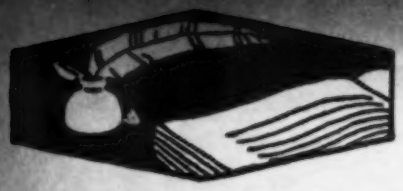
Resolicit! This is the secret of "overboard" War Bond subscriptions. Your State Payroll Chairman has a special Resolicitation Plan for you to put into action near the end of the campaign.

Give generously of your **Advertising Space** to drive home the War Bond story.

The Treasury Department acknowledges with appreciation the publication of this message by

SOAP AND SANITARY CHEMICALS

★ *This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council* ★



YEAR-END REPORT to users of WESTVACO CAUSTIC SODA

In 1944, with very few exceptions, all orders for Westvaco Caustic Soda will have been "delivered as promised". Throughout the year, our South Charleston plant has operated at a level considerably above designed capacity even though the stars on Westvaco's Service Flag now number 35% of prewar personnel!

During the year, installation of new processing and control equipment has helped further to improve the quality and uniformity of Westvaco Caustic Soda. And, this Fall, Westvaco put into service a new fleet of tank cars with corrosion-resistant linings and all modern safety devices. Existing rolling stock is progressively being modernized.

In 1945, we confidently expect to continue to render traditionally-dependable service to all users of Westvaco Caustic Soda.

BUY MORE
WAR BONDS

WESTVACO CHLORINE PRODUCTS CORPORATION

405 LEXINGTON AVENUE · NEW YORK 17, N. Y.
CHICAGO, ILL. GREENVILLE, S. C. NEWARK, CALIF.

Chemical Exposition Held in Chicago Nov. 15-19

HUNDREDS of new chemical compounds, many of them revealed for the first time in public, marked the displays by chemical manufacturers which filled the mammoth Chicago Coliseum during the third biennial National Chemical Exposition in that city, Nov. 15 to 19.

Typical of the exhibits was that of Mallinckrodt Chemical Works, St. Louis, in whose booth were shown what was claimed to be the largest display ever yet shown anywhere of recently developed organic carbonates. Numbering 36 in all, and announced for the first time at the Chicago show, Dr. Walter M. Kelley of the company's research laboratories said of them: "They seem to open up to commercial production certain classes of organic chemicals whose synthesis has previously been too expensive."

Also shown by Mallinckrodt were a number of new pyridylmercuric salts, three of which are now in commercial production for fungicidal protection of military equipment in the tropics, an application which shows much promise for satisfactory post-war civilian uses. Along with Dr. Kelley, the staff at the booth included Dr. Paul A. Krueger, director of research, Dr. Vernon H. Wallingford, director of the organic research laboratory and three assistants, Dr. Melvin Thorp, Dr. August Homeyer and Dr. David Jones, who cooperated with him in development of the new organics. Also present were Walter Ney, Chicago sales manager, and others from the sales staff.

Victor Chemical Works, Chicago, told in their booth the "Inside Story of Victor Chemicals," with emphasis on post-war applications of phosphoric anhydride, phosphorus oxychloride and phosphoric trichloride. Used as intermediates, a representative stated, "these new tools for the chemical industry perform many chemical reactions not possible before the war because they were not available in large quantities." Today, he said, they are being produced by Victor in considerable volume. In charge at the booth were O. H. Raschke, director of sales, D. G. Brower, in charge of special products, Irwin E. Smith, W. H. Woodstock, Dr. Howard Adler, and others.

Armour & Co., Chicago, centered their presentation of "Neo-fats" and chemical derivatives therefrom on the theme, "New Tools for Hewing the Shape of Things to Come NOW," with Victor Conquest, Dale Stingley, K. E. Johnson and others in charge. Development work on the "Neo-fats" still continues, Mr. Stingley stated, one comparatively recent development being the fractionation of tall oil to remove the rosin acids.

The Dicalite Co., Los Angeles, presented a combined pictorial and physical exhibit showing manufacturing and research facilities, engineering services rendered and typical industrial applications of their diatomaceous filter-aids, absorbents, catalyst carriers and other products. Utilization of Dicalite products in war production has resulted in development of materials with new and interesting post-war applications, a representative stated. In charge were A. R. Bollaert, technical director, Los Angeles, E. J. Frankenhoff, Chicago sales manager, and others.

Alox Corp., Niagara Falls, N. Y., had a display of their line of oxygenated carbons derived from petroleum, some of which find application in medicated and metallic soaps, fungicides and other items. The company's entire facilities are at present devoted to production of rust preventive compounds for military uses, T. R. Whittleton, research chemist, stated. The exposition display, he said, was in the nature of a good will presentation with an eye to the day when Alox can return to civilian production, Dr. A. W. Burwell, vice president and technical director, was in charge, assisted by Mr. Whittleton, and James E. Shields, sales manager.

The Neville Co., Pittsburgh, Pa., displayed a line of resins, solvents and other products utilized by soap and disinfectant manufacturers, among many others. Lee V. Dauler, vice president in charge of sales, directed the presentation.

Use of lignin as a dispersant and carrying agent in detergents was explained in the booth of the Marathon Corp., Rothschild, Wis. Developed by the company's chemical division, this

(*Turn to Page* 159)

T.G.A. Meets May 9-11

The annual convention of the Toilet Goods Association will be held May 9-11, 1945, at the Waldorf-Astoria Hotel, New York.

New Hand Protective Cream

Cadet Creme Co., 10 Clarence St., Worcester, Mass., has announced development of a new protective cream for workers' hands, to guard them both against irritating substances and anything that might discolor the skin. The cream provides an invisible covering which can be easily washed off, it is claimed. A promotional campaign is being conducted in the industrial finishing field.

WFA Buying Toilet Soap

The War Food Administration asked last month for bids on 250,000 lbs. of milled or floating toilet soap in 3 to 4 ounce bars. Purchase was to be made through the Commodity Credit Corporation and the expiration date for submission of bids was November 30. Earlier in the month bids had been asked on 310,000 2-ounce bars of toilet soap.

Hylo Co. Moves

Hylo Co., manufacturers of "Hylo" and "Joy" suds, formerly of 1400 Conti St., Houston, are now located at 300 San Jacinto National Bank Building, Houston 2.

GOOD, LOW COST*

ODORS for Sprays

FLY
THEATRE
HOUSEHOLD
INSECTICIDE

*Use and profit by the facilities of this leading source of spray perfumes and made-to-order odorants. Write for catalog or consultation.

FRITZSCHE BROTHERS, Inc.

PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK, N. Y.

BRANCH STOCKS

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE

Soap Sales Off in 3rd Quarter

Soap deliveries made by manufacturers for all purposes—including Army and Navy, government, industry, and civilian use—in the third quarter of 1944 were slightly less than in the second quarter, although the deliveries for the first three quarters together were greater than in the corresponding period of 1943, according to Roscoe C. Edlund, manager of the Association of American Soap and Glycerine Producers. The comparisons made are based on reports to the association by 71 manufacturers.

Deliveries of soap other than liquid by 62 of the reporting manufacturers amounted for the quarter ending September 30 to 817 million pounds valued at nearly 112 million dollars. The pounds delivered were 1.1 per cent less than deliveries during the second quarter of 1944, and 16.8 per cent ahead of the third quarter of 1943. Deliveries of soap other than liquid as reported by this same group of manufacturers for the first nine months of 1944 amounted to 2,431 million pounds valued at nearly 324 million dollars. The pounds delivered were 17.5 per cent more than for the first three quarters of 1943.

Deliveries of liquid soap by 41 of the reporting manufacturers amounted for the quarter ending September 30 to 777 thousand gallons valued at 988 thousand dollars. The gallons sold were one per cent ahead of the second quarter of 1944, and 9.4 per cent ahead of the third quarter of 1943. Deliveries of liquid soap as reported by this same group of manufacturers for the first nine months of 1944 amounted to 2,445 million gallons valued at nearly three million dollars. The gallons delivered were 21.1 per cent ahead of the first three quarters of 1943.

Essential Oil Firm 25 Yrs. Old

Cox, Aspden & Fletcher, New York importers of essential oils, celebrated their 25th anniversary last month. The firm, which has agency connections in Central and South America, South Africa and India, was organized in October, 1919 by H. Symington Cox. Under British license the firm manufactures, in Baltimore, a rust preventive known as "Croda Fluid." It is the agent for Messrs. Plaimar, Ltd., of Perth, West Australia and has reciprocally shipped to Australia many base products for the use of our armed forces now stationed there.

Westvaco Personnel Changes

Westvaco Chlorine Products Corporation has announced the appointment of Warren R. Philbrook as industrial relation director, and Fred S. Rooney as acting manager of Westvaco's Carteret, N. J., plant.

Chemical Medal to Dewey

The Chemical Industry Medal for 1944 was presented last month to Colonel Bradley Dewey, president of Dewey & Almy Chemical Co., Boston, and former Rubber Director, at a joint meeting of the American Section of the Society of Chemical Industry, the New York Section of the American Chemical Society and the New York Section of the American Institute of Chemical Engineers, held at the Hotel Roosevelt, New York City.

Revise P-S-598 Soap Spec.

Federal Specification P-S-598 for liquid and paste soap for automobile, floor and general cleaning has recently been amended. The principal change is the elimination of the former liquid type of soap, P-S-598 now covering only paste soap. Some of the detail requirements on the paste soap have also been changed. Maximum permissible moisture content has been raised and is now 60 rather than 55 per cent. Allowable minimum of anhydrous soap has been dropped to 40 per cent as compared with the former minimum of 43 per cent. A maximum rosin content of 6 per cent is allowed as against "no rosin" in the former specification. Former requirements fixing the acid number of the mixed fatty acids between 195 and 205, the glycerol content at 4 per cent minimum, and the unsaponified and unsaponifiable matter at a maximum of 0.8 per cent have all been dropped from the amended specification.

Report Fat Salvage Rise

More than 223,500,000 pounds of used cooking fats had been turned in by civilians up to July 31, 1944, according to the annual report on fat salvage submitted to the board of directors of the Association of American Soap and Glycerine Producers, New York recently. Another 122,900,000 pounds of fats were salvaged by the armed forces. Civilian fat salvage averaged over 16,000,000 pounds a month during the first seven months of 1944 as compared with a monthly average of 7,455,000 pounds for the corresponding period of 1943. Best month was April, 1944, when 18,098,000 pounds of used cooking fats were salvaged.

In addition to other promotional efforts on behalf of the fat salvage drive, it was stated in the report, that the OPA's ruling of Dec. 13, 1943 allowing two red meat points for every pound of waste fat turned in was an important stimulus to the drive. A reduction from 71,400,000 pounds of salvaged fats in 1943 to 43 million pounds in 1944 had been forecast by the officials of the armed forces, based on the large movement of men out of the country. However, the Navy department alone reported more than 8,141,715 million pounds of fats were salvaged during the first six months of 1944, which would indicate that the advance estimate was on the pessimistic side.

The fat salvage is conducted in conjunction with the War Food Administration, the Office of Price Administration, and the Office of War Information by the American Fat Salvage Committee, Inc. Directors and officers of the committee are: Roy W. Peet, vice-president, Colgate-Palmolive-Peet Co., Jersey City, N. J., chairman; Grafton B. Perkins, vice-president, Lever Bros. Co., Cambridge, Mass., vice-chairman; D. M. Pfeiffer, president of the National Renderers' Assn.; Adrien F. Busick, John J. Emery, of Emery Industries, Cincinnati, Neil McElroy, vice-president, Procter & Gamble Co., Cincinnati, and Roscoe Edlund, manager of the Soap and Glycerine Association, who is secretary-treasurer.

Looking at a flower through X-ray eyes—

As the X ray penetrates to and through the heart of a fragile flower, just so are the deft skills and the long experience of Dow technicians applied in seeking out the very essence of floral beauty for many aromatic chemicals.

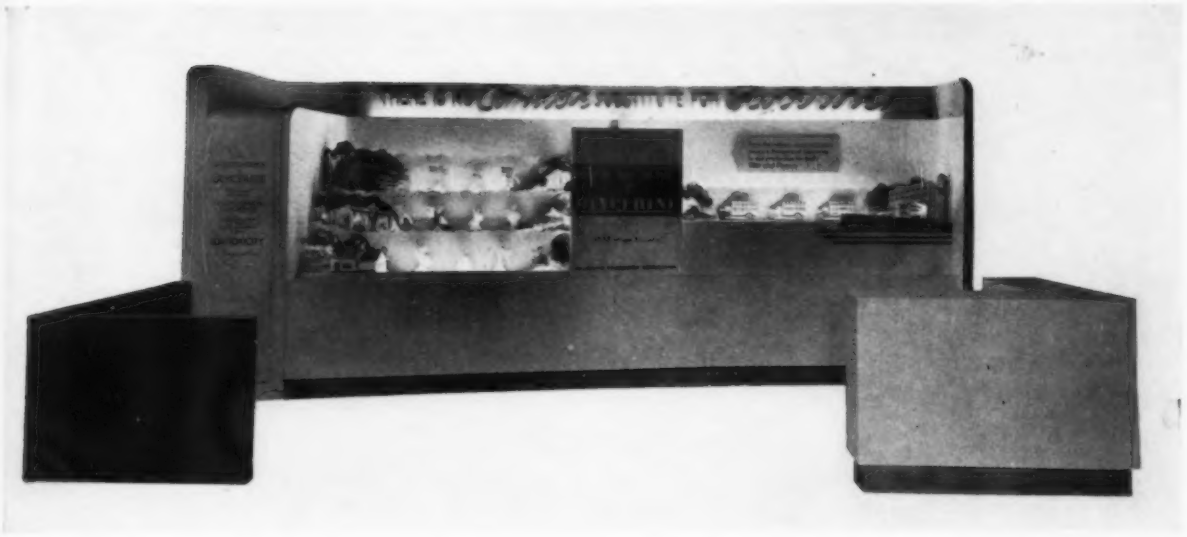
SYNTHETIC

AROMATICS

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN



The indispensable role of glycerine in modern civilization was the theme of the display sponsored by the Association of American Soap & Glycerine Producers at the National Chemical Exposition, held in Chicago, November 15-19. Thousands of visitors were received at the booth during the exposition and their many questions about glycerine and glycerine applications answered. Booklets detailing the role of glycerine in industrial as well as edible products were distributed.

Show Soaps at Food Meeting

Thirteen manufacturers of soaps and sanitary chemicals participated in the exhibition of products at the annual meeting of the National Association of Food Chains in Chicago, Oct. 19 to 21. Because of the hotel room situation at the Drake headquarters of the convention, displays were scattered among 15 hostelries around the town. Companies showing their lines or maintaining hospitality centers included:

Colgate - Palmolive - Peet Co., Jersey City, N. J.; Lever Bros. Co., Cambridge, Mass.; Swift & Co., Chicago; Allen B. Wrisley Co., Chicago; Beacon Chemical Corp., Philadelphia; Climalene Co., Canton, O.; Fitzpatrick Bros., Chicago; Interchemical Corp., Fair Lawn, N. J.; Oakite Products Co., Chicago; O'Cedar Corp., Chicago; Penick & Ford, Cedar Rapids, Ia.; Solventol Chemical Products, Detroit; Wilbert Products, New York.

Italian Bergamot Oil Arrives

Reports of the arrival of 90,000 pounds of bergamot oil, among other essential oils, from Italy were received here last month. At the same time a "fair quantity" of Bourbon geranium oil from Madagascar was said to have reached the United States. In spite of the arrival of these two shipments, no great optimism is held out by the essential oil trade that this indicates the arrival in the near future of other and greater quantities of these and other much needed oils. As a matter of fact the paucity of shipments from Italy and the almost complete lack of any from Algeria, both fairly sizeable producers of essential oils, are causes for concern among essential oil men. One source reported that at $5.00 a pound for the natural bergamot as compared with $3.65 for the artificial product there was no great demand for the recently arrived Italian bergamot. The nominal quotation on Bourbon geranium is $12.75 a pound.

Mennen Names Bonham

Lewis F. Bonham, for the past six years merchandising manager for Personal Products Corp., Milltown, N. J., recently was appointed director of advertising and sales promotion of Mennen Co., Newark, N. J.

Luckman Addresses Sales Execs.

Charles Luckman, president of the Pepsodent division of Lever Bros. Co., Chicago, was a speaker at a conference sponsored by the Chicago Sales Executives Club, in that city, Nov. 16.

Fitch Expands Plant

F. W. Fitch Co., Des Moines, Ia., hair tonic and shampoo manufacturer, is making $18,000 worth of improvements to its plant, it was learned recently. A second story, 120 x 130 feet, will be added to the soap factory and will be of brick and steel construction. In addition, eight steel tanks are being set in place that will be used for storing 32,000 gallons of oils, which will be used in the manufacture of Fitch products.

CD—CA Xmas Party Dec. 21

The 42nd annual Christmas party of the Chicago Drug and Chemical Association will be held in the Gold Coast Room of the Drake Hotel, Chicago, Dec. 21. Price of the affair is $7.50. Cocktails are to be served at 6 p.m., followed by dinner at 7:30. Checks should be made payable to the association and sent with reservation cards to Wm. H. McConnell, Brenner Chemical Co., 20 N. Wacker Drive, Chicago 6.

Apollo Chemical N. Y. Office

Apollo Chemical Co., dealers in chemicals, oils, waxes, resins, gums and other chemical raw materials, announced the opening of an office at 51 E. 42nd St., New York, late last month. A four-page folder, describing the service and products of the company, may be obtained upon request.

Fire won't wait!

THERE must be quick action . . . materials for charging fire-fighting apparatus must be available for instant use.

That is why Cole Laboratories, Inc., Long Island City, N. Y., package their Foam Liquid and Speed Foam Drench in Crown cans. Completely protected by Crown cans, Cole products are kept laboratory-fresh . . . always ready for life—and property-saving service.

CROWN CAN COMPANY
NEW YORK • PHILADELPHIA
Division of Crown Cork and Seal Company
Baltimore, Md.

CROWN CAN

BIDS AND AWARDS

Navy Grit Soap Bids

The following bids on 15,000 cakes of grit soap were received in a recent opening for miscellaneous supplies by the U. S. Navy Department Bureau of Supplies and Accounts, Washington, D. C.: Unity Sanitary Supply Co., New York, 20c a pound and Colgate-Palmolive-Peet Co., Jersey City, N. J., 11.8c.

WFA Soap Purchases

The following soap awards were announced in recent openings for miscellaneous supplies by the War Food Administration, Washington, D. C.: (soap) Iowa Soap Co., Burlington, 60,000 pounds, 17.5c a pound; J. B. Williams Co., Glastonbury, Conn., 175,000 pounds, 97c; (toilet soap) Armour & Co., Chicago, 60,000 pounds, 17.09c a pound; Swift & Co., 101,250 pounds, 15.62c; 67,600 pounds, 16.21c and 2000 cases, 15.62c a pound; Allen B. Wrisley Distributing Co., Chicago, 611,500 pounds at 16.6c a pound; Procter & Gamble Distributing Co., Cincinnati, 137,520 pounds at 18.11c a pound; Swift & Co., Chicago, 101,250 pounds at 16.21c; Colgate-Palmolive-Peet Co., Jersey City, N. J., 8,338⅛ pounds at 16.8875c; Armour & Co., Chicago, 58 cases (wrapped) $4.40 per case and (soap pearl Borax) U. S. Soap Manufacturing, Philadelphia, 448,000 pounds at 8.5c a pound.

Treasury Polish, Soap Awards

In a recent opening for miscellaneous supplies by the Procurement Division of the U. S. Treasury Department, Washington, D. C., Armour & Co., Chicago, entered the low bid of 11c per pound on 150,000 pounds of chip laundry soap, which was accepted. Other bidders included J. Eavenson & Sons, Camden, N. J. with a bid of 11.4c a pound on only 75,000 pounds and Procter & Gamble Distributing Co., Cincinnati, 11.04c. In another Treasury opening on the same day, R. M. Hollingshead Corp., Camden, N. J., submitted the low bid of 50c per gallon with an alternate bid of 40c per gallon on 300 gallons of metal polish.

Williams' Shave Cream Bid Low

J. B. Williams Co., Glastonbury, Conn., entered the low bid of 35.28c a pound, which was accepted, on 1,500 pounds of shaving cream in a recent opening for miscellaneous supplies by the Procurement Division of the U. S. Treasury Department, Washington, D. C. Among the other bidders were: William Messer Corp., New York, who entered a bid of 42.8c; Unity Sanitary Supply Co., New York, who entered a bid of 38c; and N. Brittingham & Sons, Philadelphia, who bid 38c.

FWA Soap Bids

The following bids were received in recent openings for miscellaneous supplies by the Federal Works Agency, Public Buildings Administration, Washington, D. C., on 495 gallons of soap paste, 990 gallons of soap paste and 1,760 gallons of liquid toilet soap: on 495 gallons of soap paste, Crystal Soap & Chemical Co., Philadelphia, 8c a pound for 4,050 pounds; Industrial Distributors, New York, 10.7c, total $481.50; Unity Sanitary Supply Co., New York, $1.05 a gallon; State Chemical Manufacturing Co., Cleveland, 7⅛c a pound, $288.56; William Messer Corp., New York, 10.6c, total $424; Theo. B. Robertson Products, Chicago, 42c a gallon; Trio Chemical Works, Brooklyn, 80c a gallon; West Disinfecting Co., Chicago, 80c a gallon; Rose Chemical Co., New York, 88.8c a gallon, containers not returnable; Chicago Sanitary Products So., Chicago, 10.5c a pound for 4,331 pounds; and Procter & Gamble Distributing Co., Chicago, 8c a pound for 3,960 pounds. On the 990 gallons of soap paste, Rose Chemical Co., New York, 87.8c a gallon; Crystal Soap & Chemical Co., Philadelphia, 8c a pound for 8,100 pounds; Industrial Distributors, New York, 10.4c a pound, total $936; Wm. Messer Corp., New York, 10.6c for 7,700 pounds; Unity Sanitary Supply Co., New York, $1.05 a gallon; Swift & Co., Chicago, $7.90 cwt. for 1,000 pounds; State Chemical Co., Cleveland, 6.5c a pound for 8,100 pounds, with an alternate bid of 52c a gallon; and Procter & Gamble Distributing Co., Chicago, 8.5c a pound for 7,920 pounds. On 1,760 gallons of liquid toilet soap, Puritan Co., Atlanta, $651.20; Crystal Soap & Chemical Co., Philadelphia, $663.52, $32 drum allowance; Trio Chemical Works, Brooklyn, $692.80, container deposit $96; Haag Laboratories, Chicago, $704, drums returnable at bidders expense; Chicago Sanitary Products Co., Chicago, $721.60, $160 container deposit; James Good Co., Philadelphia, $725.76, 32—54 gallon drums; State Chemical Mfg. Co., Cleveland, $932.80; A. L. Cahn & Sons, New York, $966.24; Wm. Messer Corp., New York, $1,073.60, contained deposit $160; and West Disinfecting Co., Long Island City, N. Y., $1,144, container deposit $224.

WFA Special Soap Purchases

The following special soap purchases were announced recently by the War Food Administration, Department of Distribution: medicated soap, Parke Davis Co., Detroit, 6,000 cakes, 12.5c per cake; toilet soap, Armour & Co., Chicago, 1,435 cases, $5.61 a case; 1,362 cases, $4.30; 859 cases, $3.90; 2,685 cases, $3.51; Lever Bros., Boston, 35,625 pounds, 16.432c a pound.

Low Rust Preventive Bid

F. E. Anderson Oil Co., Portland, Conn., entered a low bid of 78c a gallon, which was accepted, on 500 gallons of rust preventive compound in a recent opening for miscellaneous supplies by the Philadelphia Navy Yard, Philadelphia. Other bidders included Potomac Chemical Co., Washington, D. C., $1.17; Antico Products, Baltimore, $1.39 a gallon; Trautman Chemical Engineering Co., East Cleveland, $1.40; Brilco Laboratories, Brooklyn, 85c; Valvoline Oil Co., Edgewater, N. J., $1.038 and R. M. Hollingshead Corp., Camden, $1.08.

SEASON'S GREETINGS

To our many friends
we extend best wishes
for Christmas and the
New Year

GEORGE LUEDERS & CO.

427-29 WASHINGTON STREET NEW YORK 13, N. Y.

Branches: Chicago, San Francisco, Mexico City, Montreal

One of America's Pioneer Importers and Manufacturers of Essential Oils and Aromatics

NEW TRADE MARKS

The following trade-marks were published in the November issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

DI-MO—This in upper case, extra bold letters for liquid cleanser for upholstery and other textiles. Filed June 12, 1944 by Diamond Chemical Co., San Francisco. Claims use since Feb. 26, 1944.

MARTINA J. Q. A. MARTIN—This in upper case, bold and upper and lower case script letters for glass cleaning compound. Filed June 22, 1944 by J. Q. A. Martin, New Bern, S. C. Claims use since Feb. 10, 1944.

TOPSOL-SUDS — This in upper and lower case script and block reverse letters for powdered soap. Filed June 24, 1944 by Pure Tallow and Soap Co., St. Paul, Minn. Claims use since May 1, 1944.

"THE HOUSE MAID IN A PACKAGE"—This in upper case, bold letters for general purpose cleaner. Filed July 10, 1944 by Lite Soap Co., Aurora, Ill. Claims use since June 1, 1930.

EUREKA—This in upper case bold letters for combination surface, textile and hand cleaner. Filed Aug. 7, 1944 by Eureka Products Co., Chicago. Claims use since June 1, 1937.

SUPERL METAL POLISH—This in upper case letters for metal polish. Filed Aug. 26, 1944 by Superl Supply Co., Los Angeles. Claims use since Aug. 26, 1944.

TUCOCIDE—This in upper case, reverse letters on a grained rectangular background for chemical compound in powdered form having deodorizing, sterilizing and germicidal properties. Filed May 20, 1943 by Tubbs Co., River Falls, Wis. Claims use since June 20, 1942.

AIR-OMA—This in upper case, extra bold black letters for household deodorant. Filed Apr. 4, 1944 by Julius Halpern, Philadelphia. Claims use since Aug. 3, 1943.

ACCO—This in upper case, extra bold black letters for liquid floor wax. Filed Mar. 31, 1944 by Acme Chemical Co., Milwaukee. Claims use since Dec., 1916.

TRITON—This in upper case, bold letters for liquid, paste and powder cleansing materials. Filed Jan. 27, 1944 by Rohm & Haas Co., Philadelphia. Claims use since Mar. 16, 1935.

MIRACO—This in upper case, reverse letters for medicated soap. Filed July 15, 1944 by Miraco Products Co., Niles, Ill. Claims use since May 9, 1944.

FT—This in upper case, open, shadow letters for compounds for cleaning dentures. Filed July 26, 1944 by Mahl Co., Huntington Park, Calif. Claims use since July 21, 1944.

MERCIREX—This in upper case, bold letters for medicated soap. Filed July 31, 1944 by L. D. Caulk Co., Milford, Del. Claims use since Aug. 3, 1923.

KENTUCKY CLUB—This in upper case letters for brushless shaving cream and shaving soap. Filed Aug. 5, 1944 by Irene Black Cosmetics, Inc., New York. Claims use since Nov., 1939.

PARALATE—This in upper case letters for laundry detergent. Filed Sept. 1, 1944 by Diamond Alkali Co., Pittsburgh. Claims use since July 10, 1944.

EMULSEPT—This in upper case, bold letters for bactericide and fungicide. Filed Feb. 19, 1944 by Emulsol Corp., Chicago. Claims use since Sept. 4, 1941.

STRIL—This in upper and lower case, extra bold black letters for shampoo. Filed Aug. 28, 1944 by Procter & Gamble Co., Cincinnati. Claims use since July 10, 1944.

TIZ—This in upper case, extra bold letters superimposed on a globe showing the western hemisphere and beneath the words: "World Over" for detergent cleaning compound. Filed Aug. 9, 1943 by Atlas Chemical Co. of Texas. Claims use since Jan. 3, 1943.

DUCKEY—This in upper case, bold letters for silver polish. Filed Sept. 14, 1943 by John Stalfort & Sons, Inc., Baltimore. Claims use since July 15, 1943.

SHOWEY—This in upper case, bold letters for all-purpose cleaning preparation. Filed Sept. 14, 1943 by John Stalfort & Sons, Inc., Baltimore. Claims use since July 15, 1943.

STA-ALL—This in upper case, bold letters for silver polish and all-purpose cleaner in liquid, solid and paste forms. Filed Sept. 14, 1943 by John Stalfort & Sons, Inc., Baltimore. Claims use since July 15, 1943.

THAT—This in huge, upper case, extra bold letters for silver polish. Filed Sept. 23, 1943 by John Stalfort & Sons, Inc., Baltimore. Claims use since July 15, 1943.

ALCODINE—This in upper case, extra bold letters for general, all-purpose cleaning compound. Filed July 7, 1944 by Chemical and Solvent Co., Dallas. Claims use since Feb. 15, 1943.

X-BAZIN—This in upper case, italic, extra bold letters for brushless shave cream. Filed July 26, 1944 by Hall & Ruckel, Inc., New York. Claims use since Apr. 14, 1943.

SARENE—This in upper and lower case, bold script letters for lather oil hand cleanser. Filed Aug. 17, 1944 by U. S. Sanitary Specialties Corp., Chicago. Claims use since May 19, 1944.

STERICIDE—This in upper case, bold letters for disinfecting solution for dental and surgical instruments. Filed Feb. 7, 1944 by Fidelity Medical Supply Co., Dayton. Claims use since Dec. 1, 1941.

PERSISTICIDE — This in upper case, bold letters for parasiticides, insecticides, fungicides and germicides. Filed July 22, 1944 by California Spray-Chemical Corp., Wilmington, Del. Claims use since June 30, 1944.

crystal gazing with PQ silicates . . .

PLANNERS of post-war products and processes, look into our "crystal"—this soluble glass. You'll see a variety of useful arts now being practiced in industry with the silicates, colloidal and crystalline. And there are other uses too, still fresh from the patent office.

In the list of 50 different soluble silicates, available from PQ, get the valuable properties of colloids, adhesives, binders at very low cost. Besides the silicates you use in soap and detergent manufacture, other grades can serve you efficiently and economically for such purposes as hardening concrete floors, grease-proofing packages, sealing fiber shipping containers.

Any time that you want more information about silicates, their properties and applications refer to Bulletin 17-1. If you don't have a copy, let us send it to you without cost.

PHILADELPHIA QUARTZ CO.
Dept. B, 129 South Third Street, Phila. 6, Pa.
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Distributors stocks in over 65 cities • 9 PQ Plants

Sodium Silicate
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PQ SILICATES OF SODA

WORKS: Anderson, Ind. • Baltimore, Md. • Chester, Pa. • Gardenville, N. Y. • Jeffersonville, Ind. • Kansas City, Kans. • Rahway, N. J. • St. Louis, Mo. • Utica, Ill.

PERSISTO—This in upper case, bold letters for parasiticides, insecticides, fungicides and germicides. Filed July 22, 1944 by California Spray-Chemical Corp., Wilmington, Del. Claims use since June 30, 1944.

PERSISTOL—This in upper case, bold letters for parasiticides, fungicides, insecticides and germicides. Filed July 22, 1944 by California Spray-Chemical Corp., Wilmington, Del. Claims use since June 30, 1944.

HAV-A-GANE—This in upper case, bold letters for shampoos. Filed July 24, 1944 by Household Products, Inc., Stamford, Conn. Claims use since June 30, 1944.

DUCKEY—This in upper case, bold letters for polishing wax in liquid, solid and paste forms for floors, woodwork, automobiles, etc. Filed Sept. 14, 1943 by John Stalfort & Sons, Inc., Baltimore. Claims use since July 15, 1943.

KWIK-TIME — This in upper and lower case letters for floor wax. Filed Aug. 17, 1944 by Kwik-Time Products Co., Corona, N. Y. Claims use since July 18, 1944.

DO-MOR—This in upper and lower case letters above a drawing of suds for soap. Filed Aug. 16, 1943 by Samuel Halaby Co., Rochester, N. Y. Claims use since Nov. 20, 1942.

CLAROLENS — This in upper case letters for chemically treated cloths for polishing spectacle lenses. Filed Sept. 3, 1943 by Chemitex Products, Philadelphia. Claims use since Apr. 21, 1943.

FELTOSCOUR — This in upper case letters for detergent preparations for textile fabrics. Filed June 21, 1944 by General Dyestuff Corp., New York. Claims use since Oct. 18, 1943.

GLOBRITE—This in upper case open letters for powdered cleaning compound. Filed Aug. 31, 1944 by Globe Chemical Co., St. Bernard, O. Claims use since June 16, 1944.

ARABIAN NIGHTS—This in upper and lower case, old English letters for tooth paste and disinfectants. Filed July 17, 1943 by Scherk Corp., New York. Claims use since 1932.

STAR-COAT—This in upper and lower case, bold, script letters for chemical preparation used to prevent attack of wood by wood boring insects. Filed July 31, 1944 by Foss & Co., Vineland, N. J. Claims use since Oct., 1943.

TI—This in upper case letters within a circle for scalp cleanser. Filed Aug. 8, 1944 by Thomas Impell, Cold Spring, N. Y. Claims use since Oct. 30, 1941.

John J. Loughlin, steward of the Chemists Club, New York, and well-known to many executives in the chemical, soap, drug, insecticide, and allied fields, received a citation for meritorious service in collecting single-handed over five thousand dollars for the New York War Fund. The citation signed by Richard W. Lawrence, War Fund campaign chairman, was presented to Mr. Loughlin by Archbishop Francis J. Spellman of the Roman Catholic Archdiocese of New York. Mr. Loughlin, an amateur photographer of note, in turn presented to the Archbishop a photograph of the statue of Christopher Columbus in Central Park, New York, to be sent to Pope Pius, XII. (Photo International News.)

Trade Marks Granted

409,807. Insecticides and insect repellents. Filed by Commercial Solvents Corp., New York, Jan. 17, 1944. Serial No. 466,639. Published Aug. 8, 1944. Class 6.

409,820. Germicides, insecticides, fungicides, vegicides and disinfectants. Filed Mar. 28, 1944 by Geigy Co., New York. Serial No. 468,749. Published Aug. 8, 1944. Class 6.

409,834. Shampoo. Filed by Odell Co., Newark, N. J., Apr. 25, 1944. Serial No. 469,646. Published Aug. 8, 1944. Class 6.

409,840. Metal cleaners. Filed by Pennsylvania Salt Mfg. Co., Philadelphia, May 4, 1944. Serial No. 469,943. Published Aug. 15, 1944. Class 4.

409,848. Insecticides, fungicides or disinfectants. Filed by Rohm & Haas Co., Philadelphia, May 17, 1944. Serial No. 470,352. Published Aug. 8, 1944. Class 6.

ASK HIGHER SOAP PRICES

(*From Page* 40)

mendously. In 1942 the Dietrich firm was paying 40c per hour for unskilled labor, where today's rate is 45 to 50c for such labor as is available.

The company advises that its application for relief to the OPA office in Washington met with the suggestion that they apply for consideration to their local OPA headquarters, E. W. Ranson, head of the Soap, Vitamins and Inorganic Chemical Unit in Washington advised that "as for removing ceiling prices from soap, such a step does not appear desirable until the underlying conditions which would cause a sharp rise in prices are no longer present. It appears that the demand for soap is still above the supply and that inflation would result if ceiling prices were removed."

The can that carries "sunshine" to England will bring you the juice of 19 oranges!

● Our British allies were crucially in need of liquid "sunshine" — the health-giving Vitamin C of oranges. Problem: how to ship enough oranges or canned orange juice in vessels cramped for space.

The answer? Orange concentrate. A single carload of this amazing new concentrate in cans equals 30 carloads of oranges!

Today it's helping to boost Britain's health *above* peacetime levels. Tomorrow it will bring Vitamin C to millions who don't want the fuss or muss of squeezing fresh fruit. And one little 6-oz. can will hold the juice of 19 oranges!

A new process de-waters the fruit and reduces the bulk to ⅛th of the former volume, leaving a syrup. All you do is add 7 parts water, mix, and presto—orange juice!

Soon you'll get this new product—along with all the other fine fruit juices you get in cans today. And it will come in cans—because cans *protect* and *preserve*.

To do our war job we've developed new ideas and new skills, too. That's why as we look ahead we see *new and better things in Continental cans.*

ATTENTION, BUSINESSMEN:—We'll be glad to discuss present and future uses or improvements of your product or package. Write Dept. A., 100 East 42nd Street, New York 17, N. Y., or Continental Can Company of Canada, Limited, Sun Life Bldg., Montreal.

CONTINENTAL CAN COMPANY

NEW AND BETTER THINGS IN CONTINENTAL CANS

Awarded to Plant 78, Chicago • Illinois

ARMY E NAVY

SAVE TIN AND HELP CAN THE AXIS

RAW MATERIAL MARKETS

As of Nov. 22, 1944

PREDICTING that world demand for fats and oils probably will continue strong in 1945 and 1946 in relation to available supplies, a statement attributed to the U. S. Department of Agriculture infers, at least, that these important soap raw materials will not be freely available again for at least two more years. Prices, of course, under those conditions will remain at or near ceilings for 1945 and possibly 1946. The price decline may come in 1946, although it will be contingent on the Pacific situation. The reopening of Far Eastern sources of palm, coconut, palm kernel, peanut and soybean oils to the United States would lift a huge burden from the shoulders of domestic producers. In the years before the war we imported annually about 3½ billion pounds of oils from the Far East.

Although the total supply of fats and oils in the United States from domestic materials in 1944-45 may be around 10 billion pounds, approximately 1¼ billion pounds less than in 1943-44, cattle slaughter goals in 1945 probably will be set one million head above 1944 by the War Food Administration. Hog goals have not been set for 1945 but the 1944 pig crop was 25 to 30 per cent smaller than the year before. This will be represented in a decline of about one billion pounds in the production of lard and rendered pork fat, the total production of which will be around 2.5 billion pounds. It is in the pig department that the prospect for the greatest decline in the overall fats and oils supply picture lies.

In reviewing domestic use of fats and oils in the United States in 1944 for civilian and military consumption, the Department of Agriculture states that 10¼ billion pounds were used. This was said to be nearly ¼ of a billion pounds more than a year earlier. The increase in 1944 was said to be due to increased use of fats and oils in soap, mainly to meet expanded military and industrial requirements.

In 1945 there will continue to be a strong domestic demand for fats and oils, and with a reduced total supply and an increased volume of exports, the supply of fats and oils for domestic consumption may be smaller than in 1944, according to the Department of Agriculture.

Federally inspected hog slaughter for September, 1944, dropped be-

FATTY ACIDS **UNITOL** ROSIN ACIDS

The Refined Tall Oil—

USED BY MANY SOAP PRODUCERS AS A ROSIN REPLACEMENT AND SUPPLEMENTARY STOCK

UNITOL SAPONIFIES MORE RAPIDLY THAN OTHER FATS AND OILS USUALLY EMPLOYED IN HARD SOAP FORMULATIONS

UNITOL ACCELERATES THE SAPONIFICATION OF OTHER FATS AND OILS IN SOAP FORMULATIONS

UNITOL IS ADVANTAGEOUSLY USED IN COMBINATION WITH OTHER FATS AND OILS IN THE PRODUCTION OF LIQUID SOAPS AND GELS

UNITOL HAS REMARKABLE DETERGENT PROPERTIES VALUABLE FOR DEGREASING SOLVENTS AND DISINFECTANT SOAP COMPOUNDS, ETC.

UNITOL IS READILY AVAILABLE AND AT LOW COST
SAMPLE AND ANALYSIS WILL BE SUPPLIED UPON REQUEST

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By-Products Dept.
2164-66 WOOLWORTH BUILDING, NEW YORK, N. Y.

PEER

LIQUID SOAP DISPENSER

. . . the same pre-war standards . . .

Before the war PEER was the favorite popular-priced machine in "The Trade" — because it represented a fine Dispenser for the money. PEER had what it takes for big sales: Attractive, Rugged, Dependable in Operation, Low in Cost. We stress the point that the PEER of then and the PEER of NOW are exactly the same — it is STILL the big favorite.

Write for folders and prices.

MOORE BROS. CO.

Manufacturers of Soap Dispensers and Dispensing Equipment

100 WARREN ST., NEW YORK 7, N. Y.

SEASON'S GREETINGS

from

Compagnie Parento, Inc.

low the August figure, and the September figure for a year earlier. The total for the first nine months of 1944, however, totaled 53,872,814 head, as compared with 43,962,663 head for the first nine months of 1943. The five year average for the period is 35,-872,814. In August, 1944, 4,145,212 head were slaughtered as compared with 3,520,588 for September of this year.

Essential Oil Developments

With the announcement, last month, that the first shipment of bergamot oil from Italy had arrived since the United States entered the war, came word that a price of $5 a pound had been set by the Foreign Economic Administration.

An estimated 90,000 pounds of the oil came to this country after purchase by the U. S. Commercial Co. It is believed that the present shipment represents about a year and one-half's normal, prewar domestic supply. Britain and Russia also received a portion of the oil that had been available in Italy. Distribution of the bergamot among perfumers will be pro-rated on the basis of quantities purchased by these firms in the base period: 1936-1940. The present supply was purchased by the Allied Control Commission in Italy at the suggestion of the Foreign Economic Administration several months ago, but delivery was delayed because of lack of shipping space. Trade sources did not foresee any great demand for the Italian oil since it sells for nearly $1.50 more than current quotations on the synthetic product. During the height of the bergamot scarcity prices went as high as $20 and $30 a pound for the Italian oil.

Wood Rosin Price Raised

The base maximum price for producers' sales of FF wood rosin has been increased from $3.18 to $3.50—or 32 cents a hundred pounds—in carload quantities, f.o.b. plant, the Office of Price Administration announced late last month. The base ceilings for pale grades of wood rosin, which were below $3.50 a hundred pounds, have also been increased to $3.50. The OPA's action was brought about by Amendment No. 187 to Revised Supplementary Regulation No. 14 to the General Maximum Price Regulation. It is effective Nov. 20, 1944.

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Fielding Addresses Chicago Assn.

The Chicago Drug & Chemical Association was addressed by Capt. Michael Fielding, noted radio commentator, at their monthly luncheon in the Drake Hotel, Nov. 30. Capt. Fielding, a British veteran of World War I, journalist, world traveller and military authority, talked on the subject "Searchlight Through the Fog," a brilliant analysis of world affairs.

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Proctor Personnel Changes

E. Bowers Ayres, Jr. and P. Kay Schwartz have recently been elected vice presidents and Walter S. Corson elected treasurer of Proctor & Schwartz, Inc., Philadelphia manufacturers of industrial drying equipment and textile machinery.

RAW MATERIALS FOR THE SOAP INDUSTRY

COCOANUT OIL

VEGETABLE OIL FATTY ACIDS ANIMAL AND FISH OIL FATTY ACIDS

THE LAMEPONS—Unique surface active agents for cosmetic and industrial use

QUADRAFOS—A stable polyphosphate for water conditioning and effective detergency

Castor Oil
Corn Oil
Cottonseed Oil
Olive Oil

Olive Oil Foots
Peanut Oil
Rapeseed Oil
Sesame Oil

Soya Bean Oil
Fatty Acids
Lard Oil
Neatsfoot Oil

Oleo Stearine
Stearic Acid
White Olein
Tallow

Grease
Lanolin
Caustic Soda
Soda Ash

Borax
Caustic Potash
Carbonate Potash
Sal Soda

Boric Acid
Modified Soda

Silicate Soda
Metasilicate
Tri Sodium Phosphate

Di Sodium Phosphate
Chlorphyll
Superfatting Agent

Tall Oil—
Refined & Crude

Dry Alkali Mixtures

Petrolatum
White Mineral Oil

We compound your formulas. Let us handle this operation for you.

WELCH, HOLME & CLARK CO., Inc.
563 GREENWICH STREET ESTABLISHED 1838 NEW YORK CITY

NUCHAR

SPEEDS UP PRODUCTION by speeding up purification ...by adsorption

Many soap manufacturers know that Nuchar Active Carbon is a powerful purification agent, but they've asked us why Nuchar packs such a purification punch.

The answer lies in Nuchar's extreme adsorptive power — a result of this Active Carbon's intricate capillary structure. Laboratory technicians contend that a teaspoonful of Active Carbon contains a million square inches of active surface area for attraction of molecular substances out of solution — a pound contains 1,900,000 square yards of surface area!

Yes, it's adsorption that makes Nuchar invaluable in purification processes.

Stepped-up wartime production has led manufacturers to use stepped-up purification methods. Possibly your process can find added production through extending the use of Nuchar Active Carbon. Write for complete information, stating conditions, to assist us in determining the best grade for your use. A generous laboratory sample will gladly be sent on request.

Nuchar Active Carbons ★ Abietic Acid ★ Snow Top Precipitated Calcium Carbonate ★ Liquid Caustic Soda ★ Chlorine ★ Lignin ★ Liqro Crude Tall Oil ★ Indusoil Distilled Tall Oil ★ Tall Oil Pitch ★ Sulphate Wood Turpentine.

INDUSTRIAL CHEMICAL SALES

DIVISION WEST VIRGINIA PULP & PAPER COMPANY

230 PARK AVENUE, NEW YORK 17, N.Y.
35 E. WACKER DRIVE, CHICAGO 1, ILLINOIS
748 PUBLIC LEDGER BLDG, PHILADELPHIA 6, PA
844 LEADER BLDG, CLEVELAND 14, OHIO

PRODUCTION SECTION

ALKALINE SILICATES

THE alkalinity of alkali metal silicates and their buffering effect has been studied. The pH values of very dilute (0.01 Normal) solutions of commercial silicates were determined and are shown in the table below.

Silicates form good buffering solutions in alkaline detergents and provide a means of economy in detergent consumption. The free hydroxyl ions are only released as required from the un-ionized molecules in solution. Since it is the hydroxyl ion which is largely used up in cleaning processes of this kind, the fall will be gradual, with a steady release of silicate ions, or of micelles of silicate ions with hydrated silica molecules. These, being charged bodies, play a very important part in the deflocculating of solid residues, resulting in colloidal suspension. The important thing is that the action is reversible; as the hydroxyl ions are removed, more are forthcoming from the hydrolysis of the silicate.

Titration curves of silicates with hydrochloric acid show that the more siliceous the silicate, the greater the resistance to change in alkalinity, or the greater the buffering power. This is a point in favor of the more siliceous silicates for use with detergents.

Among the methods of studying the surface activity of compounds is the measurement of contact angle against some particular surface. The wetting of a wax deposit by alkaline solutions has been studied and the contact angles measured. These are given in the following table for solutions equivalent to 1 per cent of Na_2O, against a paraffin wax surface at 18° C.

Alkaline Compound	*Contact Angle in degrees*
Liquid silicate $Na_2O:SiO_2$ 1:3.3	Less than 10°
Liquid silicate $Na_2O:SiO_2$ 1:2	40.5
Sodium metasilicate	54.0
Sodium sesquisilicate	54.5
Sodium orthosilicate	55.5
Trisodium phosphate	70.0
Sodium carbonate	102.0
Sodium hydroxide	104.0

These values show caustic soda to be a very poor wetting agent against paraffin wax, liquid silicates to be very strong wetting agents. The other silicates have about the same wetting power, which is much better than that of trisodium phosphate and soda ash. P. D. Liddiard. *The Chem. Age* 51, 317-20 (1944).

Theory of Hydrogenation

Two main theories have been put forward to explain hydrogenation, one chemical and the other physical. The chemical theory postulates that compounds are formed with the catalyst, which rapidly disintegrate into smaller combinations, and the consequent regeneration of the catalyst. The intermediate combinations were stated to be loose compounds of indefinite composition.

The physical theories were put forward by numerous workers. The present idea of the mechanism of catalyst action involves all of these. The first step is adsorption of the reactants on the surface; these molecules are held by valency forces and then under favorable conditions are activated.

If a mixture of linolein and olein is hydrogenated it is found that the linolein is preferably hydrogenated into olein prior to any of the latter being converted to stearin. This principle is generally applicable to the hydrogenation of unsaturated fats. This has several practical implications. For example, the composition of a hardened fat of a given iodine value cannot be reproduced by mixing a much less hardened with a more hardened fat. On the other hand, it is fortunate that the process is so selective because for many purposes the presence of glycerides more unsaturated than olein is undesirable, since they are more liable to atmospheric oxidation, with the consequent development of rancidity. When linolein is partially hydrogenated the resultant product is a mixture of several oleins, some of which are solid.

Fish and whale oils have become popular for hydrogenation because they may be completely deodorized by the addition of hydrogen. The odor of fish oil is attributed to a fatty constituent, clupanodonic acid, $C_{17}H_{27}COOH$, which by the addition of 8 hydrogen atoms becomes stearic acid. When hydrogenated to an iodine value of about 50, fish oil has the consistency of hard tallow and the fishy odor is entirely

pH Values of Dilute Silicate Solutions

Silicate	*Na_2O Per cent*	*SiO_2 Per cent*	*$Na_2O:SiO_2$ Ratio*	*pH 0.01 N Solution*
Liquid Silicate A	8.45	27.67	1:3.27	9.14
Liquid Silicate B	18.41	39.77	1:2.16	10.58
Metasilicate A	30.55	26.32	1:0.86	11.32
Metasilicate B	28.54	28.38	1:0.99	11.30
Sesquisilicate	34.50	24.47	1:0.61	11.77
Orthosilicate	37.99	18.35	1:0.48	12.37

Looking Forward to Peace

and to the further lifting of restrictions on the manufacture of soap machines, we cordially extend our wishes to you for —

A MERRY CHRISTMAS and
A PROSPEROUS NEW YEAR

HOUCHIN

MACHINERY COMPANY, INC.

Manufacturers of soap making equipment

6th AND VAN WINKLE AVES. HAWTHORNE, N. J.

removed. This product is satisfactory for soap-making purposes. Mixture with softer fats is of value, as the presence of excess stearic acid reduces solubility as well as lathering power. S. Glicher. *Manufacturing Chemist* 15, 365-7 (1944).

Heat Capacity of Oil

The heat contents of cottonseed oil, a hydrogenated cottonseed oil, and a mixture of cottonseed oil and petroleum naphtha, have been measured over ranges of temperature within which there is transformation of the glycerides of the oils from a completely solid to a completely liquid form. Determinations have been made of the heats of fusion of the oils and of the specific heats of the oils in both solid and liquid states. G. D. Oliver, W. S. Singleton, S. S. Todd, and A. E. Bailey. *Oil & Soap* 21, 297-300 (1944).

Fish Oil Hydrogenation

Marine oils are treated to produce a product having a bland flavor by subjecting the oils to catalytic hydrogenation while maintaining temperature and pressure conditions such as to promote elimination of fish odors and flavors. The deodorized and deflavored oil is subjected to further hydrogenation at a relatively low temperature, in the presence of activated carbon. In this way a product is obtained free from undesirable fish odors and flavors and also free from hydrogenation flavor. D. J. Hennessy. Canadian Patent No. 423,214.

Thermal Study of Fats

Calorimetry is a potentially useful tool for the investigation of transformations between the liquid and solid states of fats, and between different polymorphic forms in the solid state, since all of these transformations are associated with definite heat effects. A low-temperature calorimeter suitable for the examination of fatty materials with moderate accuracy is described. Applications of calorimetry to the examination of fats and fatty derivatives are discussed. A. E. Baildy, S. S. Todd, W. S. Singleton, and G. D. Oliver. *Oil & Soap* 21, 293-7 (1944).

Selective Calcium Softening

Many industrial water requirements can be satisfied by softening the raw water to reduce the calcium hardness only and leave the magnesium hardness in solution. This is particularly applicable to process water used for cooling purposes, and where reduction of calcium hardness and alkalinity will establish a balanced water that will not deposit calcium carbonate on heat exchange surfaces with rise in temperature. The chemical cost of reducing calcium hardness is materially less than the cost of reducing both calcium and magnesium hardness.

Lime and soda softening for reduction of calcium hardness only, can be controlled by the pH value of the process; the pH is normally held between 9.6 and 10.2. The exact control point is determined for the individual water. The softening process is followed by partial neutralization, either with acid or with scrubbed and purified flue gas to a controlled pH point, designed for a stable water as determined by the Langelier Index or by marble tests, or it may be further stabilized by the application of polyphosphates. Data are presented on results of this treatment at Wright Aeronautical Corporation and other industrial plants. R. T. Sheen and E. B. Woodruff. *Ind. Eng. Chem.* 36, 971-85 (1944).

Antioxidant Studies

Nordihydro quaiaretic acid, recently isolated from the common desert creosote bush, and frequently referred to as NDGA, has shown excellent promise as an antioxidant. It compares favorably with other substances of the phenolic type in antioxygenic activity. In the presence of ascorbic acid its antioxidant properties in fat are enhanced.

Gum guaiac, an excellent stabilizer, has been found an effective antioxidant for lard, presumably due to the presence of guaiaretic acid. Other substances recently found to possess antioxidant activity are maleic acid, fumaric acid, and esters of these acids. Thiourea and sulfhydryl compounds proved effective with fats in the presence of water. *N*-propyl gallate has been found to prevent rancidity in fats of both animal and vegetable origin. B. F. Daubert. *J. Am. Pharm. Assoc.* 33, 321-8 (1944).

Application of Calorimetry

The relative amounts of solid and liquid glycerides in cottonseed oil and a hydrogenated cottonseed oil have been estimated calorimetrically at different temperatures over the melting ranges of the oils. From previous micropenetration data on commercial fatty products, it is established that such fats are plastic and easily worked only at solids contents between about 15 and 35 per cent. Differences in the content of solids of as little as 1 per cent are sufficient to cause noticeable differences in the consistency of plastic fats. Within the ranges of temperature and iodine value at which hydrogenated cottonseed oil is plastic, it is estimated that each decrease in iodine value of 1 unit causes the solid-glycerides content of the oil to increase approximately 1 per cent. A. E. Bailey and G. D. Oliver. *Oil & Soap* 21, 300-302 (1944).

Catalyst Separation

Catalysts can be separated from hydrogenation reaction mixtures with the use of a filter aid such as "Dicalite 4200," spread in a layer about 1 cm. thick. The filter aid can be included with the compound to be hydrogenated so that it is present during hydrogenation. This tends to give a better suspension of the catalyst and in many cases a better color of the finished product. F. Kipnis. *Ind. Eng. Chem., Anal. Ed.* 16, 637 (1944).

Methyl Esters of Fatty Acids

Methyl esters of the common fatty acids, from caproic to stearic, and including oleic and linoleic acids, were obtained in a pure state by repeated fractional distillation. Vapor pressure curves and decomposition pressures and temperatures have been determined for each of the methyl esters. With the exception of the C_{18} series, an ester fraction can be identified and its purity ascertained by means of its vapor pressure curve. P. M. Althouse and H. O. Triebold. *Ind. Eng. Chem., Anal. Ed.* 16, 605-6 (1944).

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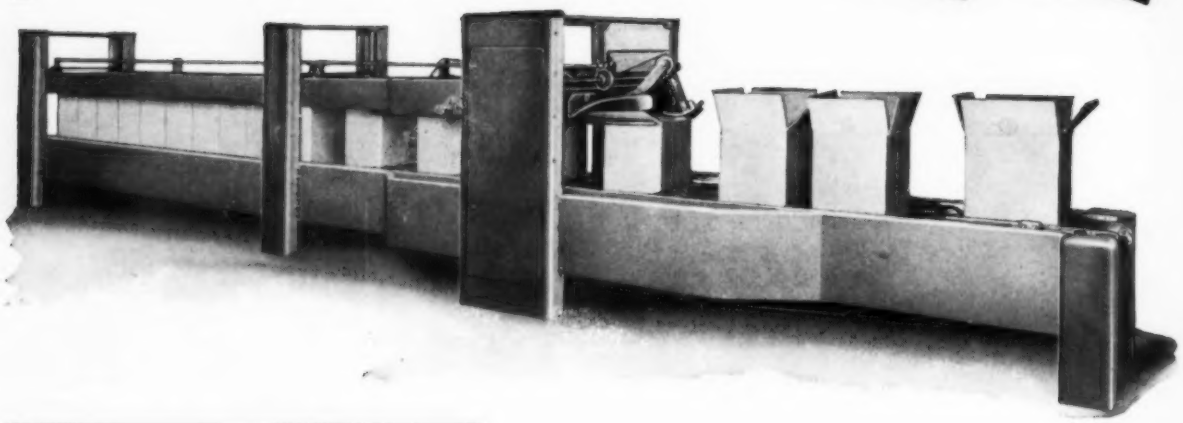

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Modern streamlined design . . . requires no operator . . . seals 30 cases per minute . . . extra-rigid construction that practically eliminates "down time" . . . low maintenance cost. Adjustable to these size ranges: 6″ to 18″ width; 8″ to 30″ length; 3″ to 28″ height.

The two machines illustrated above are forerunners of the widely diversified line ABC engineers are readying for the postwar market, including also:

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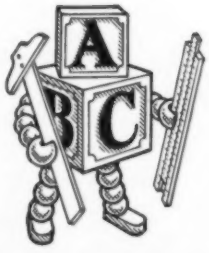

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QUINCY, ILLINOIS

PRODUCTION Clinic

By DR. E. G. THOMSSEN, PH.D.

RECENTLY two diverse attitudes toward the selection of new equipment came directly to our attention. Since they are quite typical of the reaction of many manufacturers toward purchasing new machinery, they warrant attention. The first manufacturer had a problem which was costing him money day in and day out. He was falling behind on a large contract and was unable to catch up with the machinery which he was using. We advised him to junk this obsolete machinery and to purchase a rather expensive piece of more modern equipment, that was quickly available and for which he could furnish the high priority necessary to obtain it almost at once. When he received the quotation from the manufacturer he considered the immediate outlay for a long time, and concluded it was too much money to spend. He shopped around and picked up another old type machine just about like that he was already using and paid about one-third the price at which the modern machine was quoted. His reason was that the war might end suddenly, his production drop off and then he would be out of pocket a considerable amount over what he paid for the equipment. This occurred over three months ago. Since then he has been operating two shifts six days a week, using at least four times as much labor as would have been used with the modern installation. When we saw him last he admitted his judgment was poor and that by now he could have paid a good sum toward

the newer type machinery. He stated he was still behind in his orders and that his costs were even higher than before because of the inexperienced labor he was employing. Had he bought the machine we recommended, he could have run it with his experienced labor.

The second manufacturer was a small producer of a commodity whose product had to be completed within a matter of weeks. After the time of production was up, the business was of such a nature that it was merely a question of selling and shipping. In previous years he could pick up good, slack labor. This year he anticipated a few months beforehand that the labor shortage would make this difficult and curtail his previous methods of handling the situation and gaining his output in time. When he came to us we suggested a series of conveyors and distributors for straight line production that would very materially decrease his handling labor and increase his output. The amount of money he had to spend for this arrangement looked high for a two months' operation. He decided to go ahead, however. His savings in labor were indicated at about one-fifth the cost of the equipment.

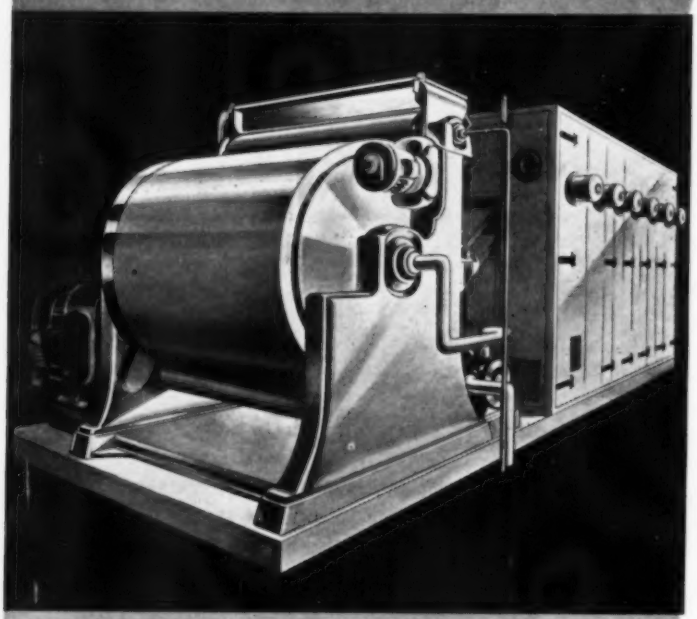
The installation operated so satisfactorily that he was well satisfied, especially since he made profits in other directions. Without this equipment he would never have completed the job on time. He prevented a lot of spoilage which was evident in previous years. He was able to conserve more of the commodity than he had ever produced before. His present demand for it was good, he had no sales problem. Through these conditions and advantages earnings were materially increased. While he did not pay for the new installation in a year, nor will he even be able to pay for it in three or four years, he was completely sold on the labor saving equipment because the profits came back to him through a different course than the usual savings on labor.

The conclusion to be drawn from these two instances is that it is a fallacy always to expect to pay for new equipment out of labor saving quickly. One hears so often that if you cannot pay for new equipment within a year in this way the installation cannot be justified. In both these cases, as is often the case, this is not true. New installations not only save labor, they may result in less spoilage, better and more uniform products, greater production when peak loads are necessary, and often permit larger batches to be made. With the many improvements in processing and packaging machinery in the offing, these considerations should enter forcibly into the decision for new, future installations.

War Time Labeling

THE Economic Machinery Company of Worcester, Mass., have sent us their booklet entitled "War Time Labeling." The information given is apropos to present day conditions. It puts emphasis upon production and conservation. The War Pro-

Perfect SOAP FLAKES Every Time



Producing flakes as thin as 3/1000 of an inch and up to 15/1000 the Proctor Flake Soap System handles a greater volume of flakes. It is the last word in modern design and extremely simplified to assure maximum production. Send for our catalog which completely describes and illustrates the Proctor System.

MADE BY THE PROCTOR SYSTEM

The Proctor Flake Soap System assures the manufacturer the uniformly dried, uniformly thin, even edged flakes required for producing high quality granulated soaps and toilet cakes. This modern equipment also assures the consistent production of the absolutely perfect flakes needed for packaging. Hot liquid soap is received from the kettle or crutcher and delivered as dried flakes in one automatic operation . . . requiring from 6 to 14 minutes depending upon flake thicknesses. Output from 750 to 6000 pounds per hour can be maintained. Absolute control of all variables in flake production is achieved. This modern system's smooth, easily cleaned exterior surface is an important feature. In addition to these advantages there is a tremendous reduction in waste from the chilling and drying processes. Appreciable savings are likewise realized in operating costs and upkeep.

PROCTOR FLAKE SOAP SYSTEM

Manufactured by

PROCTOR & SCHWARTZ · INC · PHILADELPHIA, PA.

duction Board, this Company points out, has ruled that no manufacturer may purchase labeling machinery at this time unless they label products vital to the war effort. Present equipment must suffice if manufacturers are not labeling products like foods, medicines, munitions, etc.

Since this condition exists, The Economic Machinery Company gives some sound advice in terse language. They emphasize the importance of keeping present labelers clean, lubricating them each day, making periodic check-ups with the aid of a well trained maintenance mechanic, operating at proper speeds and consulting the company when conversions or adaptations of new labeling jobs are necessary. This advice is pertinent to almost any machine today and is of extreme importance in conserving present equipment.

The World Labelers are furnished in various models. The semi-automatic types are very flexible in that they label any size from an ampoule to a gallon jug. They are well adapted for labeling short runs. For straight line and quantity production, full automatic models designated as the Rotary, Bee-Line and Turret Labelers are produced by this company.

Interesting Chemical Literature

AMONG the many new announcements that suppliers are sending us we have received quite a bit of interesting literature about new chemicals which may be of interest to the industries we serve. We have picked a few of these out at random.

The Pennsylvania Refining Company of Butler, Pa., have sent us a sample and information regarding petroleum sulphonates. While this product is under allocation at this time, it will be available generally in the post war period. It analyzes 82 per cent sulphonates, 9 per cent mineral oil, 9 per cent moisture and distributed among these items is one per cent of organic substances. This product which is a dark amber, soft, resinous substance with practically no odor, will probably find uses in the soap and insecticide industries, because of its low oil content.

The Solvay Process Company of New York, through their Product Development Section, sent us information and samples on Chloramine B, Dichloramine B and NS Detergent.

They announce that Chloramine B, which we believe is derived from benzene, instead of from toluene, as is usually the case, has been produced only in a pilot plant operation. Its many uses as a chlorine disinfectant are quite generally known. Samples of their product are available for research and investigation. The use of Dichloramine B is covered by a patent issued in 1943. This patent comprises the dissolving of water insoluble dichloramine B fused with paradichlorbenzine. This fusion can be formed into blocks which are both deodorant and germicidal for, as the "para" evaporates, the dichloramine performs its germicidal action. The NS Detergent is similar to the Nacconols. It is very soluble in hard or soft water, stable in highly alkaline concentrations, hygroscopic, is a good surface tension depressant at low concentration, without being affected by temperature or pH variations, foams well, is non-irritating and has good emulsifying properties. This product, though now available in but small quantities, should be looked into by makers of detergents, germicides, insecticides and liquid waxes.

Magnus, Mabee & Reynard, Inc., of New York, sent us a mimeographed sheet announcing development of their Neutralizer 1-A-1. This neutralizes the odor of isopropyl alcohol in the small proportion of one ounce to twenty or thirty gallons of alcohol. Samples of this deodorizer, together with any information desired are available upon request.

The Barrett Division of the Allied Chemical & Dye Company of New York have sent us a new booklet which lists the chemicals they handle. These comprise tar acids, cresols, napthalene, coal tar chemicals, Cumar resin, tar distillates and other items. What appeals to one is that in this conveniently small catalogue are given finger tip references of the type a busy production man requires. It is concise, yet clear, and complete. Many catalogues of this type are not given the attention due them, because they are too cumbersome and lengthy. This one will be filed for ready reference by persons interested in these chemicals, we are sure.

Plastic Coating

THE Amercoat Division of the American Pipe and Construction Company, Los Angeles, have issued a new technical bulletin on Amercoat 23. This product is a plastic coating that requires three different solutions to be applied as multiple coats. They are put on with facility, at room temperature, by a brush or as a spray. When the surface dries by evaporation of the solvents in the air, a dense, semi-glossy coating remains. It may be had in various colors and is applicable to most types of surfaces. The coat resists heat, moisture, abrasion, weather and has other desirable physical characteristics. It is odorless and tasteless, non-toxic and withstands the reaction of a large number of acids, alkalis, salts, oils and solvents. An item like this is required in many places in almost any type of plant. It fits a need that often arises.

Pulverizing Equipment

THE Pulverizing Equipment Company of Summit, N. J., have sent us their new forty-page catalogue covering the features of the well-known Mikro-Pulverizer. Over 4,000 of these pulverizers are now grinding a large variety of materials throughout the world. In 1940 this company moved into a large modern plant where they have a very completely equipped laboratory for research and test grinding. They have a reputation for being very cooperative in making any tests. Mikro-Pulverizers are made in numerous sizes, types and capacities and are fully and clearly described in this catalogue. It may be had upon request and should be included among the machinery literature of those who have grinding problems.

Natural Antioxidant

About 0.5 per cent of cottonseed-oil acids such as betaine compounds or other fatty acid-betaine compounds are added to oils or fats as an antioxidant. S. Shappirio. U. S. Patent No. 2,352,229.

Kettle Wax Phase in Soap

A study of the new phase, kettle wax, in the system sodium laurate, sodium chloride and water has been carried out using analytical and visual methods. The lower boundaries of kettle wax and its equilibria were established and when plotted occupy a highly dominant island region on the phase diagram. It occupies a portion between 60 and 70 weight per cent of soap and about 3-7 weight per cent of salt.

It was found that kettle wax existed above 75°C. and below 215°C. and has the same type of equilibria with lye throughout this temperature range. In the system sodium laurate, sodium chloride and water, curd is not formed, even by saturating the lye with salt at 90°C. Hence graining out results only in the formation of kettle wax and lye. J. W. McBain, R. C. Thorburn, and C. G. McGee. *Oil & Soap* 21, 227-30 (1944).

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Soap Substitutes

Washing can be done without soap by the use of fat-dissolving agents combined with infusorial earth, kaolin, chalk, or magnesia, with or without soda ash. Soda ash combines with such substances as aluminum sulfate, calcium chloride, Glauber's salt, alum, and magnesium sulfate to form adsorption surfaces upon which colloids precipitate. J. Hojka. Casopis Mydlar Vonavkar 21, 28-9.

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Determining Detergency

A new method is reported for the laboratory determination of the detergent value of a washing preparation. Pieces of cloth soiled with India ink, with India ink and mineral oil, and with India ink and vegetable oil were washed with various detergents. The washing efficiency of almost all of the synthetic products tested was improved by the addition of soda ash. Soda ash can be added to soap solution to bring the pH to 10.7, at which value the detergent action of the soap is at a maximum.

Sulfates of the aliphatic alcohols showed essentially better wetting properties than a condensation product of the aliphatic acids. Addition of a small amount of a protective colloid such as a cellulose derivative to the aliphatic alcohol sulfate increased the detergent strength 20 per cent. Saponins showed no detergent action. The different detergents behaved differently toward the various types of soil, so that laboratory results can be used to determine the best detergent for a particular purpose. E. Jaag. Tech.-Ind. Schweiz. Chem.-Ztg. 25, 331-6.

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Fatty Acid Separation

A mixture of saturated and unsaturated fatty acids is subjected to relatively low temperatures to bring about crystallization of a saturated acid portion, which is separated from the uncrystallized unsaturated portion. The latter is fractionally distilled without thermal decomposition, to obtain a plurality of fractions of this portion, of different boiling points, including a relatively large fraction of high boiling point consisting predominantly of highly unsaturated fatty acids. The apparatus for such treatment is described. Butane may be added initially to effect cooling by its evaporation. A. H. Zeigler, D. V. Stingley and J. M. Kiefer, to Armour & Co. U. S. Patent No. 2,351,249.

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Change *Oil & Soap* Name

The American Oil Chemists' Society who have published their official journal under the title *Oil & Soap* for a number of years, have recently decided to abondon this name and in the future their official publication will be known as the *Journal of the American Oil Chemists' Society*. The decision was made with the feeling that the former name of the magazine carried with it the connotation that the society's journal was a trade paper instead of a scientific publication.

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Separation of Resin Acids

Tall oil is dissolved in the mono methyl ether of ethylene glycol or in diacetone alcohol, containing a substantial amount of water. Resin acids are crystallized from the solution and separated from the liquid residue. J. D. Jenkins, to Pittsburgh Plate Glass Co. U. S. Patent No. 2,352,547.

Cleaning Milk Bottles

Virtual sterility can be achieved by the use of relatively strong caustic soda solutions (1.14-2.44 per cent) at low temperatures, or relatively weak solutions (0.30-0.66 per cent) at high temperatures. The addition to the caustic solution of substances such as sodium metasilicate, trisodium phosphate and sodium hexametaphosphate, which increase the wetting, softening, emulsifying and deflocculating power of caustic soda, is highly recommended to help remove microorganisms. Bottles may become contaminated from recirculated rinse water. This can be controlled by chlorine or chlorine compounds. Milk bottles should be practically sterile after the cleaning process. B. C. Hobbs and G. S. Wilson. J. Hyg. *43*, 96-120.

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Purification of Oils

Fatty oils containing both saturated and unsaturated constituents are purified by cooling a solution of the oil in a non-freezing solvent such as acetone to —20 to —40° C. At this temperature the more saturated constituents are precipitated and separated, along with precipitated impurities. The solution is further cooled to about —68° C. when treating linseed oil, at which the major portion of the remaining more unsaturated constituents precipitate out of solution. D. S. Bolley, to National Lead Co. U. S. Patent No. 2,352,883.

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Sulfonation of Oils

Oils and fats are sulfonated by spraying one of the reagents onto a thin film of the other flowing over the surface of a wall while this is kept within required temperature limits. Fraser & Fraser Ltd. and K. J. A. Partisch. British Patent No. 553,598.

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How to Launder Rayons Told

The story and pictures of how to launder rayons is running in the current, November, issue of *Woman's Home Companion*, in a feature entitled: "It's Washday for Rayons." The use of mild soap and lukewarm water is particularly recommended for hand-washed pieces.

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U.S.I. CHEMICAL NEWS

December ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1944

Aroplaz 1311 Replaces Scarce Alkyds in Baking Finishes

U.S.I. has just announced a new resin, S&W Aroplaz 1311, which promises to help fill the serious current need for a plasticizer resin which can be used in essential civilian bake-coatings to take the place of resins made from highly restricted phthalic anhydride.

Baked enamels, employing vehicles based on urea and melamine-formaldehyde, have outstanding hardness and color retention. Porcelain-like refrigerator finishes so made, for example, are extremely white, and stay that way. They are also very resistant to moisture, chemicals and abrasion though low in gloss characteristics.

Such coatings must be correctly plasticized as well as modified to improve their gloss; otherwise the urea and melamine-formaldehyde finishes would be entirely too brittle, too low in sheen and would have poor adhesion.

For this purpose, properly formulated alkyds perform very well. However, due to the present scarcity of phthalic anhydride, such alkyds are obtainable only for the most important military end uses. As a result, essential civilian requirements for many bake coatings can not easily be filled.

S&W Aroplaz 1311 fills this gap quite well for many otherwise restricted end uses. Combinations with it do not bake quite as hard as with phthalic alkyds; but they are sufficiently glossy, tough, color-retentive, flexible and adhesive to be entirely suitable for most purposes.

Compatible with Nitrocellulose

S&W Aroplaz 1311 is also freely compatible with nitrocellulose. Therefore, it is useful in lacquer formulation, acting as both a resin and a plasticizer. It is a semi-drying type resin.

Specifications

Solution	59-61% solids in High Solvency Naphtha
Viscosity	S-V
Acid Value of Plastic	25-30
Color (G.H. 1933)	8-10
Wt./gal. at 25° C.	8.2

U.S.I. Announces New, Interesting 48-Page Book

Profusely illustrated with color plates and black and white photographs, this new book, "U.S.I. in the World of Chemistry," reviews the story of U.S.I. chemicals. It outlines the part U. S. I. is playing in the war, its role in the peace to come, and suggests many interesting future developments.

U.S.I. will be glad to furnish a copy to anyone interested in industrial chemicals. It is requested that you write for the book on your letterhead.

Unusual Instruments Developed for Resin Research and Control

Novel Melting Point, Viscosity, Hardness and Other Tests Employed at U.S.I. Newark Laboratories

Equipment and techniques for testing the physical properties of resins and protective coatings have had to keep pace with the giant strides this industry has made since the comparatively recent introduction of synthetic resins. As a result, many devices and methods have come into use which may still be "news" to other branches of the chemical industry. With the thought that these developments may be of general interest, or suggestive of ideas adaptable to other fields, CHEMICAL NEWS pictures here a few of the less familiar instruments used in the new and modern U.S.I. resin laboratories.

***Film hardness,* is measured by this simple but surprisingly consistent Sward rocker test. Calibrated to make 50 oscillations, as measured by two carefully adjusted bubble levels, on glass, the instrument gives the relative hardness of dried finishes. The harder the surface the longer the instrument rocks. It is also valuable in studying drying rates, solvent release and progressive oxidation.**

***This melting point test* is a far cry from the days of the capillary tube! Three grams of resin are melted in a test tube, allowed to solidify, and then covered with 50 grams of mercury. In a carefully controlled oil bath, the tube is heated until melted resin appears on the surface of the mercury. A thermometer in the mercury gives the melting point. This U.S.I.-developed test gives exceptionally uniform results and has been adopted by many other resin laboratories.**

New Plastic Composition Is Easily Removed from Molds

Some form of "lubricant" is necessary for the removal of molded organic thermoplastics from their molds after forming. In the extrusion method, it has also been found desirable to assist the flow of the plastic through the extrusion orifice by the addition of lubricants.

The inventor of a new compound claims that all of the present lubricants have been deficient in some respect, such as excessive brittleness, objectionable odor, softness, and discoloration. According to his claims, lubrication is attained, with none of the adverse factors formerly encountered, by adding a lower alkyl radical containing from 1 to 8 carbon atoms to the molding composition.

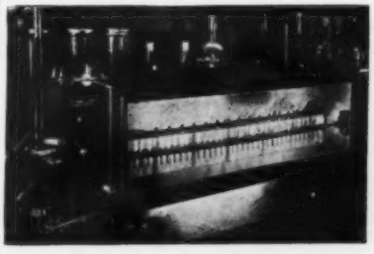
One example given is a plastic mix containing cellulose acetate, diethyl phthalate, triphenyl phosphate and methyl 12-hydroxy stearate. Effortless release from both hot and cold molds is claimed for this mix.

This type of addition agent is claimed to have similar advantages when used with nitrocellulose and other cellulose esters, and in compositions of styrene, vinyl esters, acrylic esters and like polymeric resins.

Fluorescence Suggested as New Test for Stored Foods

Following the discovery that it is possible to measure quality of stored eggs by their development of fluorescence, measurements have been tried on other types of foods.

A correlation has been discovered between fluorescence and the palatability of foods such as pork, bananas, linseed oil and various carbohydrates. Further applications of fluorescence to food testing seem to be indicated.



***Viscosity* of transparent solutions is determined by measuring the speed at which an air bubble rises through the liquid. Shown here is the constant-temperature bath in which the sample is compared with a row of Gardner-Holdt tubes containing standardized solutions. The tube rack is arranged so that all tubes can be inverted simultaneously. The more viscous the sample, the slower the bubble rises.**

(Continued on next page)

ADVERTISEMENT—*This entire page is a paid advertisement.*

December ★ **U.S.I. CHEMICAL NEWS** ★ 1944

Pregnane Series Yields Sex Hormone Substitute

One of the androstenols, a compound of the pregnane series, when administered perorally, is claimed to have the effect of the female sex hormone, corpus luteum.

According to a recent patent, androstendione-3,17 is dissolved in benzene and then treated with ethyl orthoformate, absolute alcohol and alcoholic hydrochloric acid. After heating and cooling, the solution is rendered alkaline with alcoholic sodium hydroxide solution, mixed with water and extracted with ether. Following this extraction, the dried residue is recrystallized from pyridine containing alcohol.

A solution of the androstendione-3-enol-ethyl-ether, benzene and ether is flowed into a solution of potassium acetylide in liquid ammonia. After standing and the addition of benzene, the mixture is poured into water. The benzene-water-ether layer is then washed several times with water and evaporated to dryness under vacuum.

Without further purification, the residue is dissolved in ethanol, aqueous hydrochloric acid is added and the mixture is heated. Concentration and cooling crystallizes out pregneninolone which is then filtered and recrystallized from chloroform-alcohol.

Inverted Sugar Production Facilitated with Ethanol

To increase the production of dextrose and levulose, a recently patented process separates these sugars from a concentrated solution or syrup by treatment with ethanol and subsequent agitation.

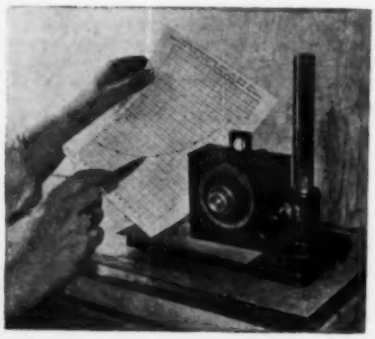
Essentially, the process consists of preparing a concentrated sugar solution, adding ethanol, agitating vigorously, and allowing the dextrose to crystallize out. The dextrose crystals are then separated from the mother liquor either by filtration or centrifuging.

Distilling the ethanol out of the mother liquor leaves a levulose syrup. Raising the pH value to about 3.5 with hydrochloric acid, concentrating to a Brix of 96 deg., and adding ethanol prepares the syrup for the crystallization of levulose. From this point on, the process is identical with the process described above for the separation of dextrose.

Unusual Instruments

(Continued from preceding page)

To test shear-hardness, a sample of the coating, applied on metal, is rotated by hand on the table of this Taber Abraser. Pressure on a stationary blade is gradually increased until the blade cuts through to the metal. To test abrasion resistance, the blade and supporting arm are replaced by a pair of carborundum wheels indirectly driven electrically. These abrade the surface by shearing action.



Film thickness is measured magnetically right down to the thousandth of an inch in this Magne-Gage. The only requirement is that it be a non-magnetic coating upon a magnetic background.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

A natural anti-oxidant, designed to preserve the flavor of foods containing either animal or vegetable fats, has been developed by a leading university and is now in commercial production. This substance, which looks like sugar, is derived from the creosote bush. **(No. 878)**

USI

Solventproof, transparent garments are offered, including gloves, caps, aprons, smocks, and sleeve guards. The full line is described in a new, free 16-page booklet. **(No. 879)**

USI

High wet strength filter papers, claimed to be practically tearproof when folded, are announced for laboratory and industrial use. Additional features are said to include resistance to dilute acids and alkalis and freedom from lint. **(No. 880)**

USI

Paint that resists up to 2500° F is announced. The paint is said to be non-inflammable, and to adhere to steel under temperatures up to 1400° F, and to alloy, brick and similar surfaces up to 2500° F. **(No. 881)**

USI

A new, self-bonding, resilient floor, said to feel like rubber and wear like stone, is announced for application over old cement, wood or composition floors without use of adhesives. It is claimed to dry in 36 hours, and to require no special application skill. **(No. 882)**

USI

A safe acetyl peroxide solution is now being offered in research quantities. Long known as an outstanding polymerization catalyst, bleach, and germicide, acetyl peroxide has been rendered non-explosive and immune to shock by dissolving it in dimethyl phthalate, according to the announcement. **(No. 883)**

USI

A green pigment, designed to add color to cement, paint and rubber, is announced. It is stated that this green pigment compares favorably in alkali and acid resistance qualities to chrome green. **(No. 884)**

USI

A new adhesive, developed by an aircraft manufacturer, is described as being capable of "sticking almost anything to anything". Among the claims made for the new adhesive, which is available as a liquid, paste, or tape, is that it will bond aluminum to steel in spite of their different coefficients of expansion. **(No. 885)**

USI

A fabric-treating chemical, said to make sheer stockings run resistant, and to remove shine from serge suits and make fabrics wear longer is on the market. The new treatment may be applied either by spraying, immersion, or sponging. **(No. 886)**

USI

Imitation chrome finish, claimed to produce an excellent simulation of real chrome, is offered in the form of a paste. **(No. 887)**

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Diethyl Phthalate

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Ethyl Chloroformate
Ethyl Formate

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Acetoacet-ortho-anisidide
Acetoacet-ortho-chloranilide
Acetoacet-ortho-toluidide
Acetoacet-para-chloranilide
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Ethyl Benzoylacetate
Ethyl Sodium Oxalacetate

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Ethyl Ether
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S&W Congo Gums—raw, fused & esterified
S&W *Aroplaz—alkyds and allied materials
S&W *Arofene—pure phenolics
S&W *Arochem—modified types
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OTHER PRODUCTS
Collodions — Ethylene
Ethylene Glycol — *Indalone
Nitrocellulose Solutions — Urethan

PRODUCTS AND PROCESSES

Soda Ash-Phosphate Mixture

A detergent mixture suitable for use with water is prepared by mixing enough water with soda ash to form a moist, non pasty mass, and then mixing this with finely divided anhydrous tetrasodium pyrophosphate in such proportion that a detergent mixture is formed which sets to a friable material that is readily broken up into fine particles which are free-flowing and readily soluble in water. A. Treffler, to Solvay Sales Corp. U. S. Patent No. 2,351,559.

Detergent of Low pH

A cleansing agent for fibrous material is prepared by treating in an aqueous medium one equivalent of one or more higher aliphatic carboxylic acids with from ⅜ to ½ of an equivalent of a water-soluble inorganic base such as caustic soda, or a corresponding equivalent amount of an alkaline salt such as soda ash or trisodium phosphate. The aqueous dispersions of these products have a pH of 7-9. E. Clayton and Wm. A. Edwards. British Patent No. 553,679.

Laundry Marking

Cloth or textile articles to be laundered or dry-cleaned are made receptive to marking with an ink containing an organic liquid by first coating the articles with a solution of cellulose acetate containing titanium oxide or lithopone. I. Braithwaite & Son Ltd. and A. L. Smith. British Patent No. 553,740.

Coating Agents for Soaps

Granulated soaps liable to disintegration are treated by applying to the surface of the soap granules a small amount of a coating agent. This agent must be capable of strengthening the granules so as to prevent formation of soap dust. The coating agent is selected from one of the following: a hygroscopic polyhydric alcohol, a normally liquid phosphate of the general formula R_3PO_4 in which R is an alkyl, hydroxy aliphatic or phenolic radical, or a water-dispersible sulfonated oil. Lever Brothers & Unilever Ltd. British Patent No. 553,735.

Antiseptic Detergent

Phemeride is a new antiseptic detergent of the class of a quaternary ammonium compound having the composition *para*-octylphenyl diethoxybenzyl dimethyl ammonium chloride. It shows bacteriostatic activity against the common pathogens in vitro. It is an efficient nonirritating skin antiseptic and is nontoxic to tissues in dilutions effective against many bacteria. C. N. Iland. Lancet 1944, I, 49-51.

Hard-water Detergent

A mixture of about equal weights of a soap and a water-soluble "alkali lignin" is used, which does not form insoluble calcium soaps when used in hard water. E. Schubert and H. Pierer, vested in the Alien Property Custodian. U. S. Patent No. 2,352,021.

Predict Dishwashing Lotion

Development of a new lotion to protect the housewife's hands while washing dishes was suggested as a postwar possibility by Dr. C. F. H. Allen, speaking before the Chemical Institute of Canada at a meeting in the Ritz Carlton Hotel, Montreal.

Soap Holder

A holder for a bar of soap is designed to prevent soap wastage. It consists of a frame to which are attached bristles extending upward and downward. The soap rests on the upper bristles, and the whole rests in a soap dish. H. L. Johnston. Canadian Patent No. 423,492.

Acetyl Peroxide

A process for making solutions of acetyl peroxide which are said to be safe to handle, has been developed by the Buffalo Electro-Chemical Co., Buffalo, N. Y. Among several applications are its use as a germicide and as a bleaching and oxidizing agent. It offers a source of active oxygen in a non-aqueous medium. As soon as equipment can be installed the product will be available in commercial quantities.

Germicidal Soap

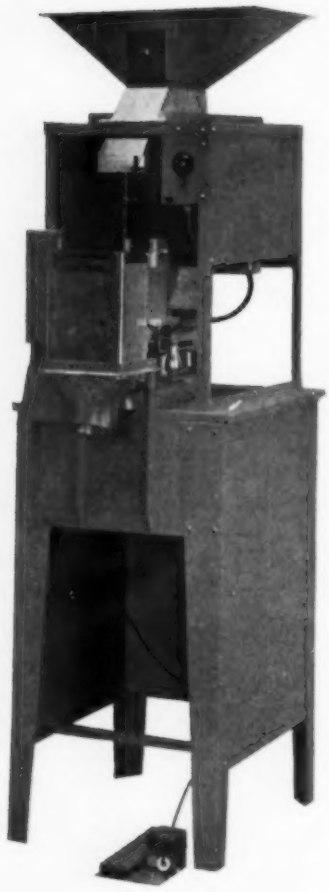
A germicidal soap composition combines a soap base having a water content of 0.3-20 per cent with finely divided crystals of an aromatic sulfone chloramide selected from the group consisting of Chloramine-T, Chloramine-B, and Dichloramine-T. The crystals, coated with mineral oil, are dispersed throughout the soap, and are in such proportion as to release 11.5-13 per cent of chlorine by weight when Chloramine-T is used, 13-14.5 per cent when Chloramine-B is used, and 28-30 per cent when Di-chloramine-T is used. The chlorine is released when the composition is in contact with water. Emily E. Smith. Canadian Patent No. 423,196.

Alkaline Stripper

For the rapid removal of zinc plate, the Enthone Company of New Haven, Conn., announces the development of an alkaline stripper called Enthone Zinc Stripper. Thicknesses of zinc of the order of 0.001 inch are stripped in 30 seconds, leaving the metal clean and bright. Due to the alkaline nature of the solution, the tendency for rusting of the steel after stripping is largely removed. The material consists of alkaline salts, which are dissolved in water in the proportion of 2-3 pounds per gallon, and the mixture heated to 200-215° F. Plain steel tanks and heating coils are used. *Chem. & Met. Eng.* 51, No. 10, 149 (1944).

Cement Floor Treatment

After treatment with "Synkrete," cement floors are said to be more resistant to water, oils, greases and chemicals, according to the makers, Synthex Products Co., New York 19. The material is diluted with three parts of water and provides coverage for 1,000 square feet per gallon. It may be applied with a mop, brush, broom or sprinkler.



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No. 2,359,291, Detergents, patented October 3, 1944 by Earl W. Gluesenkamp and Milton Kosmin, Dayton, Ohio, assignors to Monsanto Chemical Co., St. Louis. A sodium salt of a monoalkyl ester of a nonocarboxylic aromatic sulfonic acid selected from the group consisting of sulfobenzoic acids and sulfosalicylic acids in which the alkyl group has not less than 8 and not more than 12 carbon atoms and is attached to the carboxyl group.

No. 2,359,326, Dentifrice Base, patented October 3, 1944 by Henry V. Moss and Theodore W. Schib, Kirkwood, Mo., assignors to Monsanto Chemical Co. As a free-flowing dentifrice base, dry granules composed of finely divided particles of a dentifrice polishing agent and at least one wetting agent of the class consisting of compounds of the type:

R'-S O_3Y,
R-O-S O_3Y, and
R-OOC-Ar-$(S\ O_3Y)_m$
Xn

where R' is an alkylated aromatic residue of the type: R-Ar-,R being an alkyl group of not less than eight and not more than eighteen carbon atoms, Ar is an aromatic hydrocarbon nucleus, Y is selected from the group consisting of hydrogen, alkali metals, calcium and magnesium, X is selected from the group consisting of hydrogen, hydroxyl and halogen and m and n are whole numbers, said wetting agent binding said particles together in said granules.

No. 2,359,587, Alkaline Detergents, patented October 3, 1944 by Charles Schwartz, Pittsburgh. An alkaline detergent for cleaning tin, comprising by weight about 30 to 90 per cent alkali-metal metasilicate, about 5 to 55 per cent alkali-metal hydroxide, about 3 to 20 per cent alkali-metal perborate, about 1 to 10 per cent of a water-soluble zinc salt and about 1 to 10 per cent of a water-soluble calcium sale.

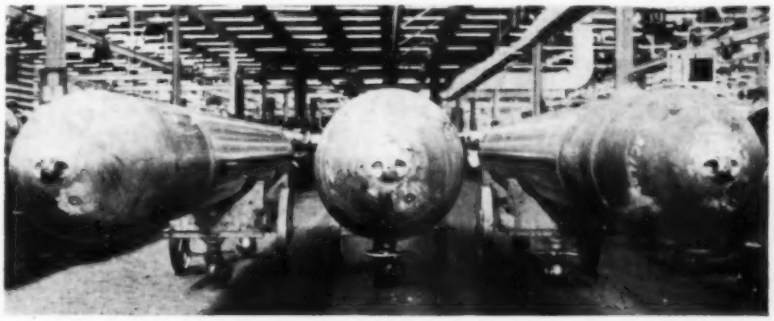
No. 2,359,799, Process for Soap Coating of Metals, patented October 10, 1944 by Robert W. Shoemaker, Anderson, Ind., assignor to Agnes J. Reeves Greer, Morgantown, W. Va. The method of treating metal to prevent corrosion which consists in cleaning the surfaces of the metal, then coating the clean surfaces of the metal with a film of a solution consisting of ordinary soap a precipitating agent consisting of a mixture of sulphate of aluminum, sodium carbonate and sodium bicarbonate and a wetting agent taken from a group consisting of sodium metaphosphate, sodium hexametaphosphate and sodium salt of sulphated alcohol obtained from coconut oil, and then removing the metal from the solution and drying it to form a protective film upon the surfaces of the metal.

No. 2,360,844, Preparation of Detergents, patented October 24, 1944 by George Burt Bradshaw, Wilmington, and Walter C. Meuly, New Brunswick, N. J., assignors to E. I. du Pont de Nemours & Co., Wilmington. The process which comprises reacting a crude glyceride with an alkanol of not more than 4 carbon atoms under substantially anhydrous conditions in the presence of sufficient alkali metal base to neutralize the free acids in said glyceride and to maintain the solution alkaline to Clayton yellow, adding an acid in sufficient amount to decompose the soaps formed, separating the glycerine and recovering monoalkyl esters of the fatty acids contained in said glycerides.

No. 2,360,920, Process of Making Soap and Article Produced Thereby, patented October 24, 1944 by Edith A. Westerberg, New York, N. Y. A new article of manufacture consisting of an elongated convexity of bud like shape and velvety appearance of uniform structure throughout, said article prepared from a soap mass whipped to sch stiffness that when dried by exposure to air will substantially retain its mass of minute air cells; has sufficient surface cohesion to be capable of packing and shipping without fracture, and which will immediately dissolve upon the application of water leaving no remainder after a single use.

No. 2,361,547, Soap Manufacture, patented October 31, 1944 by Vance N. Jenkins, Palos Verdes Estates, and Chester E. Wilson, San Pedro, Calif., assignors to Union Oil Company of California, Los Angeles. A process for the separation of soaps and acids thereof comprising forming water-soluble soaps of a mixture of stronger acids and of oil-soluble weaker organic acids and forming an aqueous solution of said soaps, supplying a quantity of mineral oil, adding to said soap solution an aqueous solution of a strong mineral acid to break the soaps of the portion of oil-soluble weaker organic acids desired, causing the released acids to rise with the oil and dissolve in said mineral oil to form a layer of acids in oil, and recovering said layer.

From lithographed cans to giant surface craft torpedoes . . . a trio of the Mark 15 torpedoes, some 25 feet long, produced by the American Can Co. at its Forest Park, Ill. plant for the U. S. Navy. First publicly displayed at the Waldorf Astoria Hotel, New York, on November 22, at a luncheon presided over by D. W. Figgis, president of the Can company, and attended by Vice Admiral Herbert F. Leary, U.S.N., Commander of the Eastern Sea Frontier, Rear Admiral Harry L. Brinser, U.S.N. Inspector of Navy Materiel, and numerous other Naval and American Can Company officials as well as representatives of the press. The giant torpedo was later shown in Grand Central Station, New York, in connection with the Sixth War Loan drive.



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DRY CLEANING SOAPS

(*From Page 38*)

process. An injury to the fabric may result by a mixture of alcohol with benzol or with ether, when applied to celanese as this synthetic material is the most sensitive fiber toward organic solvents. Celanese dissolves in ethyl and amylacetate, acetone, formic and glacial acetic acid, alcohol plus ether, alcohol plus benzol, benzaldehyde, chloroform, cresol, ethylene dichloride, nitrobenzene, phenol, pyridine, tetrachlorethane, triethylphosphate and others. A mixture of these different solvents with naphtha soap (30 parts in 100 recommended) may be applied with safety. For removing paint and varnish from fabrics, other than celanese, equal parts of alcohol mixed with benzene can be used. On celanese the benzene alcohol mixture must be diluted with naphtha. It is a safe practice in dry cleaning, especially in spotting, to test the material for celanese by adding a few fibres to acetone in a test tube. Celanese fibres will dissolve within a short time.

Organic solvents, which dissolve celanese, also have a great affinity to the other fibres and penetrate and loosen them up more or less. Advantage has been taken of this fact in compounding of indelible laundry inks. A combination of phenol, nitrobenzene, turpentine, alcohol soluble nigrosine and alcohol applied to any fibre not only resists the organic solvents commonly used in dry cleaning, but also resists alkalies, soap and boiling temperatures. Good results have been obtained with the following formula:

	Per cent
Phenol	27.6
Nitrobenzol	30.0
Turpentine	10.2
Nigrosine	25.9
Denatured alcohol	6.3

The following solvents are regarded as semi-safe for use on celanese: carbon tetrachloride, amyl alcohol, ethyl alcohol, methyl alcohol and tetrachlorethylene. Unsafe and semi-safe solvents exert the greatest cleaning action if their dilution and blending is kept above the point of damage.

Dry cleaning soaps are not universal cleaners and remove only such spots as are soluble in the different ingredients of the soap, such as water, alcohol and oil-soluble spots. For spots insoluble in dry cleaning soaps, special spot removers and chemical reagents are used, and only highly skilled cleaners, able to determine the source of a spot and to apply the specific reagent, should be trusted with this job.

Medicated Soap

Incorporation in toilet soap of 2 per cent of dihydroxyhexachloro diphenyl methane, marketed under the trade name "G-11" by Givaudan-Delawanna, Inc., New York, has been found to produce a soap which enables users to maintain an exceedingly low bacterial count on the skin. Experiments indicate that regular use of soap containing "G-11" in 2 per cent concentration has such an effect on the bacterial flora of the human skin that resident bacteria are decidedly and permanently reduced in number. An individual using this soap regularly has a lower resident bacterial count after 2 minutes of washing than an individ-

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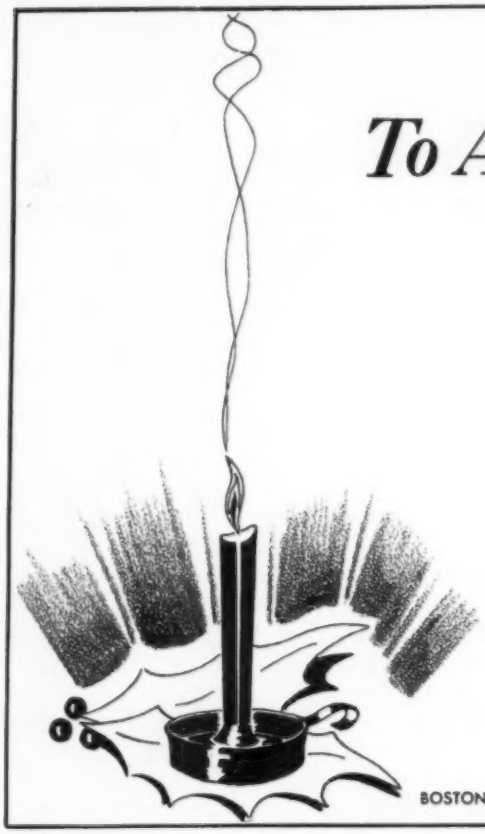

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Not until Valencia — the standard of American Pumice — was discovered at Grants, New Mexico, was it thought that a domestic pumice could match the quality of imported Italian Pumice. This inexhaustible deposit at Grants is true pumice stone and not a volcanic ash. It is physically and chemically equal in every respect to the now unobtainable Italian Pumice. • The Valencia plant's output of grades for every need is rigidly under control for particle size, purity, weight and color.

Check this table comparing Valencia with the highest grade of imported Italian Pumice. See for yourself that Valencia is truly the standard of American Pumice.

	American Pulverized Per Cent	Italian Select Per Cent
Silica	72.90	73.24
Alumina	11.28	10.61
Iron Oxide	.86	1.57
Titanium Oxide	.06	.10
Calcium Oxide	.80	1.10
Magnesium Oxide	.36	.40
Soda	3.64	3.03
Potash	4.38	5.58
Sulphuric Anhydride	.03	.05
Loss on ignition	5.20	4.04

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ual who washes for 20 minutes with ordinary toilet soap.

Regular use of this medicated soap should reduce the probability of infection following skin abrasions and superficial wounds. The soap would also be indicated for use by surgeons as a means of shortening pre-operative scrub-up procedure and eliminating the use of irritating germicides.

The compound would need to be incorporated into cake soaps at the time of manufacture, but addition would be comparatively simple in the case of liquid soaps where all that would be necessary would be to add the compound and mix thoroughly. Eugene F. Traub, M.D., Chester A. Newhall, M.D., and John R. Fuller, M.D., *Journal of Surgery, Gynecology and Obstetrics*. August 1944. Pages 205-216.

—— ♦ ——

Deodorizing Alkali-refined Oils

Deodorization of such oils as soybean or sunflower oil is effected by passing dry steam through the oil while it is maintained at a temperature of about 250-350° C. under an absolute pressure of less than 20 mm. of mercury. This is to remove 30-60 per cent of the unsaponifiable matter in the oil. Bleaching and catalytic hydrogenation are also described. R. H. Neal, to The Best Foods, Inc. U. S. Patent No. 2,351,832.

—— ♦ ——

Induction Studies

Gallic acid and ascorbic acid tested alone or in combination as antioxidants for cottonseed oil, disappeared gradually during the induction period under conditions of accelerated autoxidation. By the end of the induction period no gallic acid could be determined in the oxidizing fat substrate. However, ascorbic acid never completely disappeared under the same conditions. When the two substances were used together, no synergistic effect was noted with respect to an increased length of the induction period but the rate of disappearance of the individual compounds was altered somewhat, each substance acting apparently to delay the destruction of the other. The rate of disappearance of gallic acid alone was found to be independent of its initial concentration in the oil substrate. L. J. Filer, Jr., K. F. Mattil and H. E. Longenecker. *Oil & Soap* 21, 289-92 (1944).

POST WAR SOAP OUTLOOK

(*From Page* 35)

On the other side of the picture is the fact that with the war years' higher consumer income, many people have revived habits of cleanliness which they had lost during the depression, and others have had new standards of cleanliness forced on them by the armed forces or by the medical departments of war plants. It is doubtful that all of these gains will be lost in the immediate post-war years. Furthermore, the population has increased from 133 million in 1940 to about 140 million. Consequently it is believed that the above estimate of 2,000 million pounds of soap fats per year is a conservative estimate of post-war needs of the soap industry, providing a reasonable level of employment is maintained.

ACKNOWLEDGED HIGHEST QUALITIES

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FIRST PROGRESS REPORT ON DDT

*Cooperative Research Project between the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture and the National Pest Control Association.**

NOTE: — One of the pertinent points agreed upon when this project was being established was that the knowledge gained would be released simultaneously to the entire Industry. In keeping with this promise, the Committee has not even advised the individual "Cooperators" of the results of the tests carried on by the others. Those participating in the tests here reported will only now learn how the fact finding has progressed. The first of these series of reports, which will deal with the bedbug, is now released.

This report is preliminary and will be followed by others as more information becomes available. The present statements give the results of tests with the specific formulations that were furnished by the Bureau of Entomology and Plant Quarantine. These formulations represent those which had given the best results on the basis of the extensive tests made by them to develop more effective control measures for use by the armed forces. Experience of the Bureau has shown that formulation has an important relation to the effectiveness of the application of DDT insecticides. The experimental work is still continuing and since there may be changes in formulations, no statement of the formulations used is included in this preliminary report. Later reports will include information on this.

The sprays and powders tested were manufactured in a standardized commercial manner under the advices of the Bureau and packaged in containers that were suitable for service work. They were applied with equipment commonly used for other insecticides, and in the usual manner, by the experienced operators making the tests. It is believed that the information being developed will make it possible to properly evaluate the usefulness of DDT in advance of the time that it will become available for civilian uses and perfect methods and procedures for its use.

The tests were conducted on a nation-wide basis. Fifteen "Cooperators" in nine different city-areas performed the work. The jobs done varied from the control of bedbugs in test-animal cages in hospitals' laboratories, to extremely heavy infestations in poorer class tenements.. Thus, the test cases were concerned with all the usual type of bedbug control problems, as well as some unusual ones normally very difficult to solve.

EXAMPLE A:

An apartment unit in an apartment house in Washington, D. C., was heavily infested, particularly in the furniture. The adjacent painted walls also were infested, with numerous live specimens observed. Prevailing control methods—that is, the treatment by liquid sprays, repeated two or three times, plus the fumigation of the furniture, would have yielded satisfactory results. Approximately four hours spraying time labor would have been expended. The history of the case showed it to be long standing, but the irregular habits of the occupants had prevented a consistent follow-through.

The DDT liquid spray treatment was applied on July 5, 1944, to the affected furniture and adjacent walls. Two and one-half gallons were used in one and one-quarter hours of spraying-time. The temperature was 75 degrees. On July 12, 1944, a re-examination was made. No live specimens were observed, nor did the occupants report being troubled. One week later, on July 19, a further check-back was made. No live specimens had been reported, nor could any be found. Thus, it would appear that DDT in this case was definitely superior to prevailing control methods, and that a measurable saving in time expenditure was made.

EXAMPLE B:

In Connecticut, the sleeping quarters in a municipal fire station were extremely heavily infested. The walls and ceiling of the dormitory were tongue-and-groove matchboard. The crevices and joints of the boards provided optimum conditions on which to breed. The housekeeping conditions were fair, and the history showed repeated attempts to control the infestation by both liquid and powder insecticides, applied by the firemen. The normal PCO recommendation would be to fumigate.

On August 2, 1944, one and seven-eighths gallons of DDT liquid was applied to beds, other furniture, and the walls and ceiling. This required one and one-half hours spraying-time. The temperature was 75 degrees. On August 9, 1944, the first check-back was made. No live infestation could be found. The firemen were amazed that one single spray application could accomplish that result, as they had consistently sprayed it before. On August 18, 1944, the same excellent results were observed. This would seem to indicate that DDT has noteworthy residual killing power, as it is hardly conceivable and certainly beyond our present ability, to so treat a job of this type that all stages of the life history of the insects would be killed, at the time of spraying. Besides, the tongue-and-groove boards, at points where they were loosely joined, provided areas where the usual spraying could not contact the insect. It would appear that these sheltered insects when next coming out for feeding were killed off by the residual deposit of DDT. In addition, a considerable saving in man-hours was achieved, as such a fumigation would have required at least ten man-hours of labor.

EXAMPLE C:

In Pennsylvania, the animal-rearing rooms of a medical laboratory devoted to cancer and vitamin research were very heavily infested with bedbugs. The cages, the racks on which the cages were placed, and the adjacent concrete wall, all were infested. Most of the test animals were rats, with some dogs and guinea pigs.

One of the several large racks, containing three shelves, was selected for the DDT test. There were twenty-six circular wire cages each containing two rats resting on the rack. The cages were approximately ten inches in diameter and twelve inches high. The top was a flat metal lid without openings, the sides were wire-barred gratings, and the bottom consisted of a metal grid. Two reinforcing metal strips ran horizontally around the cages to stiffen the side gratings. Where the metal pieces joined provided ample resting and breeding places for the insects.

The normal laboratory procedure was to scour and disinfect these cages at regular intervals, the test animals being placed in other cages during this operation. This procedure was stopped on the treated cages only during the DDT tests. Alternate cages were treated with DDT liquid—the application being by paint brush. The flat solid top and the reinforcing bands were brushed. The wire-barred sides were not treated because the rats commonly gnawed on the bars and might have ingested sufficient DDT to destroy their usefulness as test animals. A section of the concrete wall directly adjacent, seven by eight feet, which had many evidences of bedbugs, was brushed solid. This treatment was rendered on July 7, 1944, the temperature being 85 degrees. A quart of DDT liquid was used during the two hours' application-time.

A check-back was made on July 14, 1944. Some fully grown live specimens remained in the treated areas. One was on the wall that had been brushed, while six were just over the line where treatment ended. One was on the rack stanchion. The behavior of those remaining alive was normal. Most were engorged with blood. It was evident from the position of those on the wall that they were avoiding the line of demarcation of treated area. At this point the opinion was expressed that the treatment was equal to those given in the past with prevailing methods.

On July 21, 1944, a further check-back was made. No live specimens were found on the treated cages, rack or wall. However, numerous specimens were observed on the untreated areas. Thus, two weeks after the application no live bedbugs were in the treated areas, though those places immediately adjacent had an active and virile condition. Because of the kill obtained and the fact that the treated spots remained free of further infestation, judgment was made that DDT liquid was definitely superior to prevailing spraying methods.

Submitted by:

RESEARCH PROJECTS COMMITTEE
NATIONAL PEST CONTROL ASSN.
J. Edwin Sameth, Chairman.

A summary of bedbug tests to date shows:

Comparison with Prevailing Methods

Tests run	*Tests Completed*	*Inferior*	*Equal*	*Superior*	*No Conclusion*	*Percentage of Superior Results*
35	29		2	26	1	89

* Before National Pest Control Association, Chicago, October 23, 1944.

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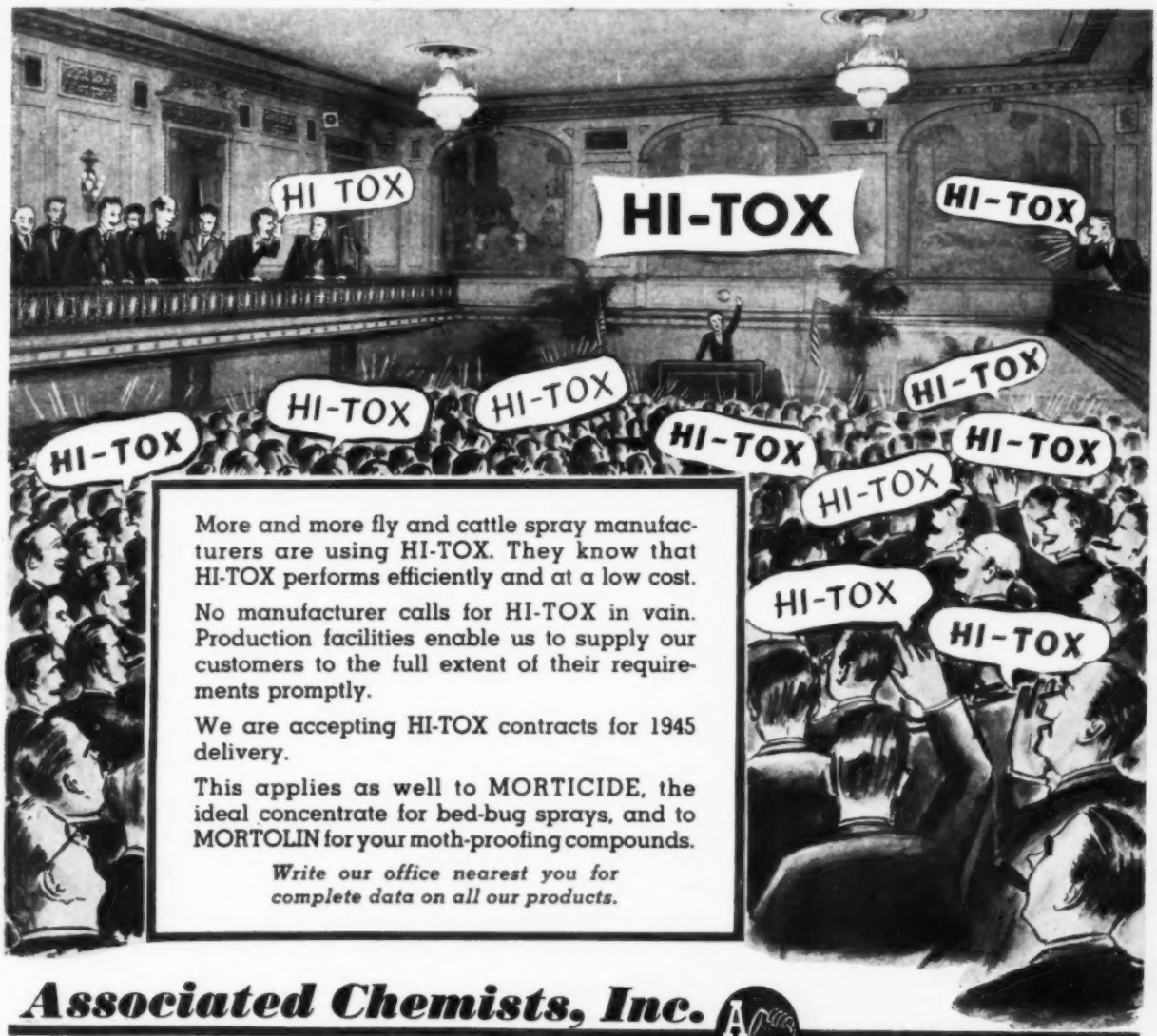

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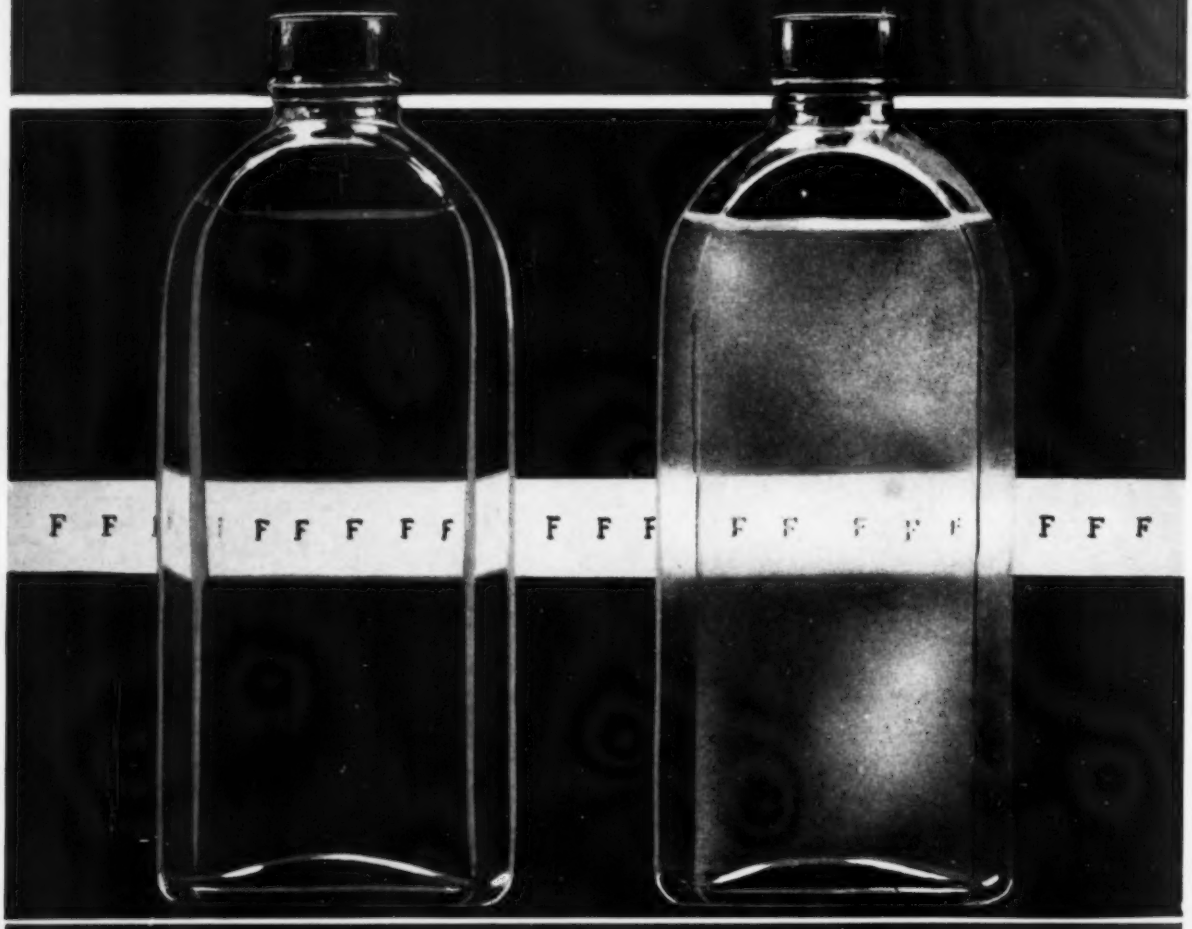

Note the clarity of the water solution of Felton Aquaromes on the left in comparison with an ordinary water soluble perfume oil.

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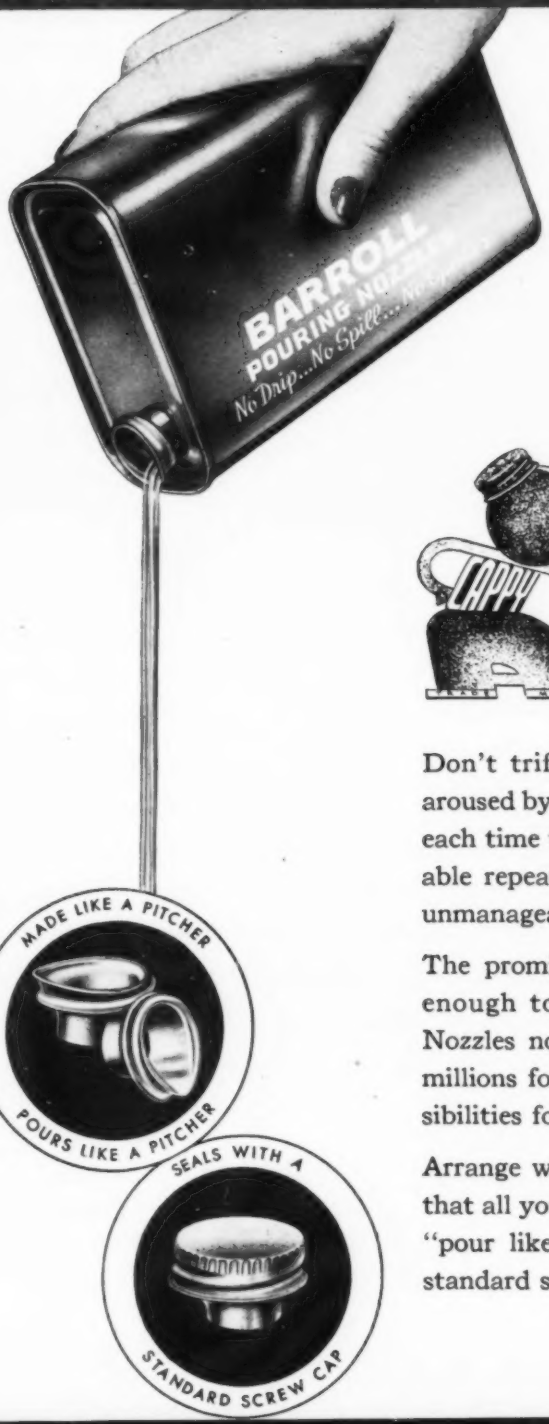

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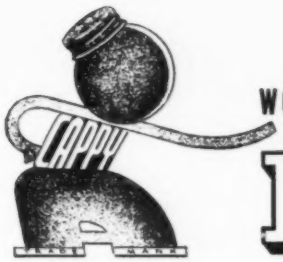
★



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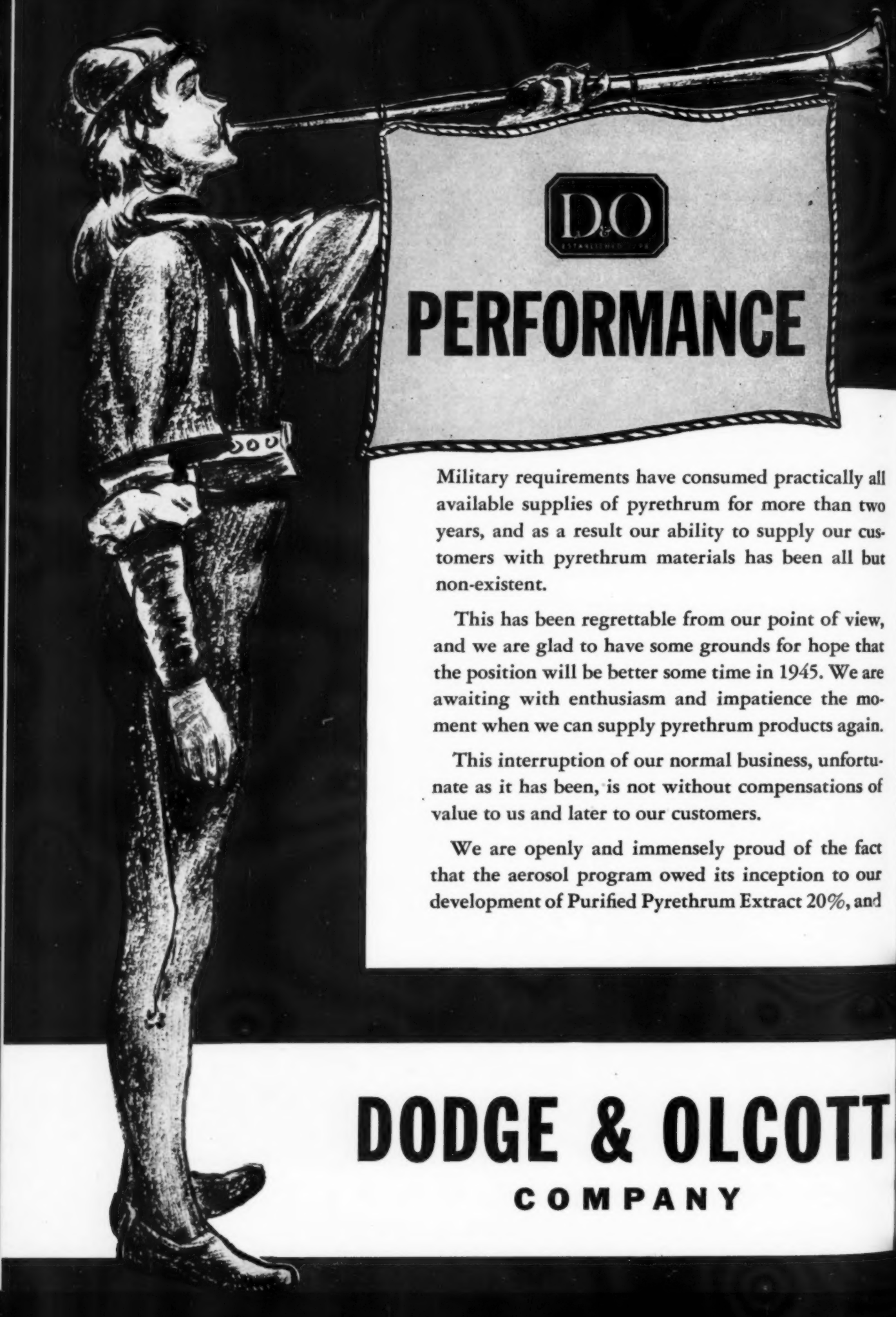

D&O

PERFORMANCE

Military requirements have consumed practically all available supplies of pyrethrum for more than two years, and as a result our ability to supply our customers with pyrethrum materials has been all but non-existent.

This has been regrettable from our point of view, and we are glad to have some grounds for hope that the position will be better some time in 1945. We are awaiting with enthusiasm and impatience the moment when we can supply pyrethrum products again.

This interruption of our normal business, unfortunate as it has been, is not without compensations of value to us and later to our customers.

We are openly and immensely proud of the fact that the aerosol program owed its inception to our development of Purified Pyrethrum Extract 20%, and

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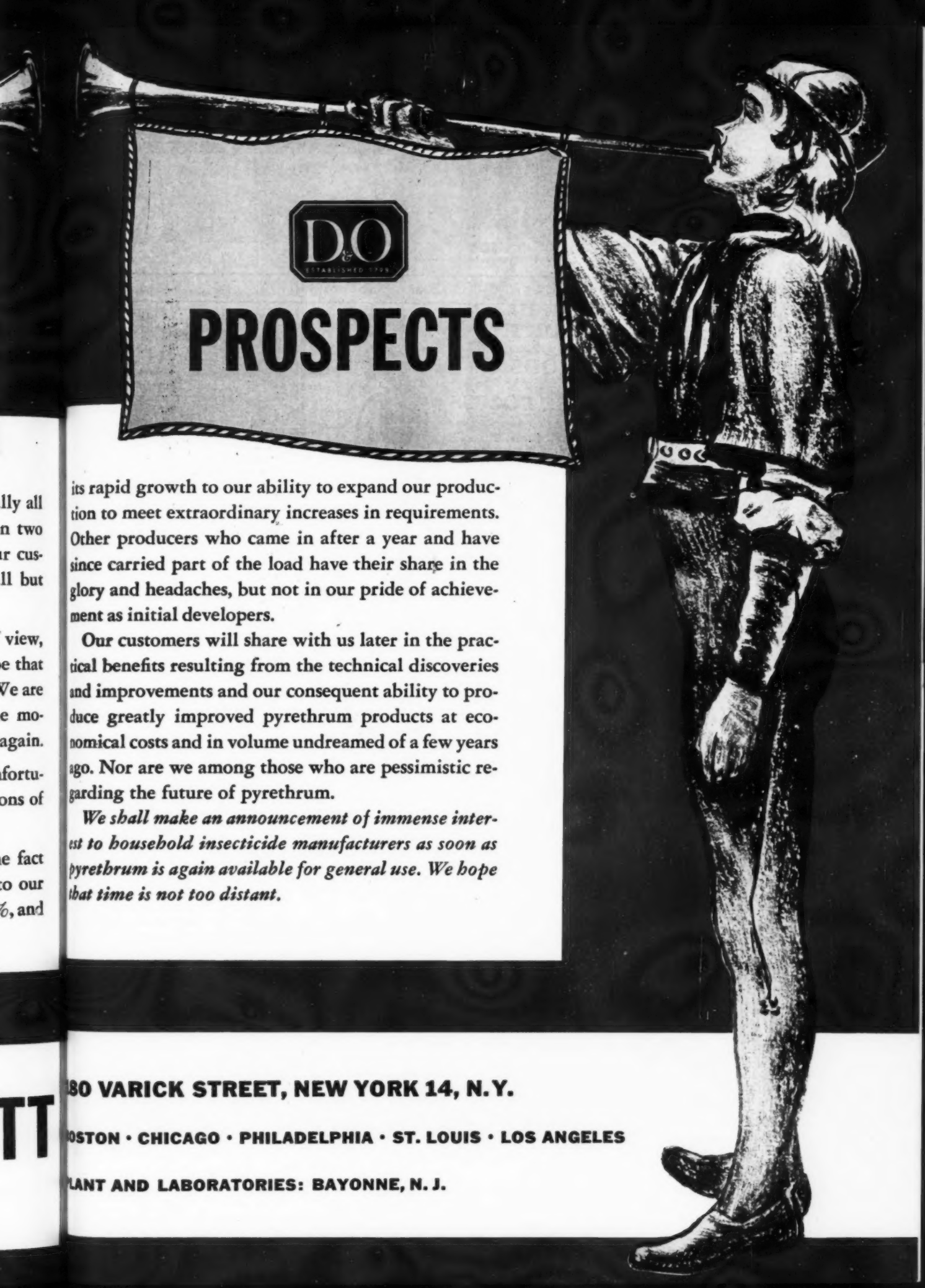

its rapid growth to our ability to expand our production to meet extraordinary increases in requirements. Other producers who came in after a year and have since carried part of the load have their share in the glory and headaches, but not in our pride of achievement as initial developers.

Our customers will share with us later in the practical benefits resulting from the technical discoveries and improvements and our consequent ability to produce greatly improved pyrethrum products at economical costs and in volume undreamed of a few years ago. Nor are we among those who are pessimistic regarding the future of pyrethrum.

We shall make an announcement of immense interest to household insecticide manufacturers as soon as pyrethrum is again available for general use. We hope that time is not too distant.

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LANT AND LABORATORIES: BAYONNE, N. J.

INSIDE NEWS

DECEMBER PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1944

Colloid Mill Treatment Permits Continuous Homogenizing Process

Paste type mill direct connected to motor

The first colloid mill was introduced into the United States 20 years ago, and since that time continuous improvement has taken place whereby a continuous rather than a batch process is used for the various mixing functions in processing industries.

A colloid mill permits continuous processing in homogenizing, dispersing, disintegrating, grinding, mixing, extracting, as well as emulsifying solids, liquids and pastes.

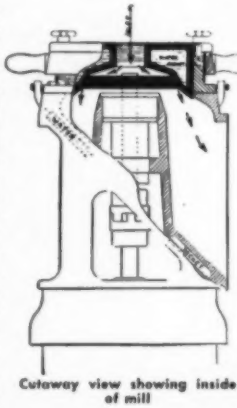
Typical industries using colloid mills are those processing food and food preparations, pharmaceuticals, and chemicals, paints, plastics and synthetic rubber. This method is also used for flavoring extracts and emulsions and processing products such as mustard, mayonnaise and salad dressings.

Superior homogenized products are assured by the uniform distribution of fat globules throughout the mix. Dispersion of solids in liquids, solids in solids, or liquids in liquids results in a more finely divided colloidal suspension and instantaneous chemical reactions. Animal or vegetable tissues can be disintegrated so completely that every particle of fiber or cellulose is instantly exposed to the extractive action of the suspending liquid.

The simplest colloid mill is of vertical design. It allows for gravity feed at inlet and gravity flow at exit. A special device for the accurate centering of the rotor and stator assures the highest operating efficiency at all times. The only moving part is the rotor. Smooth rotor and stator provide longer service under the action of abrasive materials. Abrasive rotors and stators are employed for grinding animal or vegetable tissue or fiber. Also, rotors and stators of stainless steel or other metals are used depending upon the application.

Material flows into the colloid mill by gravity through inlet and comes in contact with high speed rotor. This acts as a centrifugal pump to drive the material between the rotor and stator, through a clearance calibrated from 0.001" upwards. Hydraulic shearing action eliminates need for high pressure to accomplish the desired dispersion. The material is discharged down the spillway and through the outlet.

High-speed mixer employing colloid mill principle



Cutaway view showing inside of mill

Mills are jacketed for heating or cooling during operation to permit temperature regulation. Operation is simple due to lack of complicated mechanisms.

Mixers

High-speed mixers employing the colloid mill principle of rotor and stator, are used in mixing operations where the continuous single pass treatment is not essential. Solids may be kept suspended in a liquid. The immiscible liquids may be kept from separating by continuous circulation, and viscous emulsions may be mixed or diluted with water or solvents, or for premix preliminary to colloid mill treatment. 821

Illustrations courtesy of Premier Mill Corporation

Packing Cream-style Corn

A new method of packing cream-style corn without the use of commercial cornstarch has been developed by a large midwestern cannery firm. It involves the use of special disintegrating equipment to make a high starch cream from mature corn which is added to the cream-style pack to bring it to proper consistence 822

Clay Soil Paint Pigment

A paint pigment has been prepared from the clay soils of Puerto Rico. After treatment for 6-8 hours the resulting compound gave a paint ready for use on thinning with linseed oil. Preliminary tests indicated that this paint would be satisfactory as a general outside paint for roofs, barns, boats and machinery. 823

Oil-free Orange Juice

Oil from the peel has been one of the things that has caused plenty of trouble for citrus canning firms turning out canned orange juice. Not only did its presence hasten deterioration of the product, but it added an off-flavor which made the product distasteful to most consumers. A Florida cannery now has devised equipment for extracting this peel oil, and believes it has entirely licked the problem.

The general practice of packers was to loosen the reaming equipment so as to prevent extraction of much of the oil when the juice was pressed from the oranges. The drawback to this method was that a lot of juice was wasted. With the new de-oiler unit this Florida canner is enabled to tighten down his reamers, and only 2% is lost when the extracted juice passes through the de-oiler.

The de-oiler works on the same principle as a cream separator, removing the oil centrifugally. It was designed originally because of the need for a relatively oil-free orange juice for making citrus concentrate. It worked so well on the concentrate that the packer is using it on his "single strength" orange juice. A sizeable amount is already on the market available to civilian consumers. 824

Citrus Pulp Waste

Two new by-products from citrus pulp waste of citrus canneries are envisioned by one Florida packer—ascorbic acid and edible yeast. Pilot plant operation to extract ascorbic acid was run during the last packing season, and a full scale plant will be in operation to turn it out during the 1944-45 season. A pilot plant will operate next season to turn out the edible yeast which will be used in stock feeds. The yeast will be manufactured from the waste water in the cannery.

The cannery which will manufacture these two new products already turns out a number of by-products from its waste citrus peel. It manufactures essential oils, a citrus molasses and citrus pulp stock feed that has found a ready market for cattle feeding in Florida. 825

Healthy Skin Naturally Antiseptic

Healthy skin has a natural antiseptic action toward many bacteria. Dirty skin, by contrast, shows a sharp reduction in destructive action against bacteria. Moist areas suffer a decline in their sterilizing power. When the skin becomes dry the number of bacteria decrease. A soap with a good lather destroys diphtheria bacilli, streptococci, pneumococci, meningococci, gonococci, influenza bacilli and Eroponema pallidum. The alkalinity of the soap is not responsible for the bactericidal action, this being due rather to the undissociated fatty acid molecule. 826

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Small Insecticide Dispensers

Small aerosol insecticide dispensers—miniature metal cylinders about two inches long, carrying one-shot doses of insect gas for spraying small confined areas, may be put on the market after the war. They would be similar in design and appearance to the small carbon dioxide cylinders sold for home preparation of carbonated waters, and would be convenient for taking along on week-end trips to provide protection from insects. 827

Dental Coating

A protective coating, of interest in dental preparations as a means of treating ailments of the oral cavity, offers possibilities to manufacturers of tooth pastes, etc., and other dental preparations. The method concerns itself with the use of a protective coating material formed by combining in a solid edible matrix such as sugar particles or a pectous substance such as pectin or a pectate or pectinate, dispersed throughout the mass. The matrix will dissolve slowly in the mouth, gradually exposing the pectous particles which, as they come to the surface, form a coating. 828

Frozen Concentrated Milk

A new method for manufacturing frozen concentrated milk is being investigated by the armed forces as a possible source of fluid milk for hospital ships. The product may be one that has commercial postwar possibilities for the domestic consumer market. Developed by research workers at a state college, the new product is said to be superior to evaporated milk. Taste tests indicate that the product, when reconstituted, can hardly be distinguished from fresh milk. It can be defrosted by putting the frozen blocks directly into hot water. By using an equal amount of water, a product resembling coffee cream is produced. Twice as much water is added for beverage purposes. 829

Mechanical Corn Pickers

Corn canners soon may be owning mechanical corn pickers to lend to their growers for harvesting cannery sweet corn. Enough experimenting has been done already so that it is known that the machines will work satisfactorily. Experiments were made by one large canning concern last season to learn what adjustments needed to be made to the conventional style of corn picker which is used to harvest mature field corn. This season, a dozen of the pickers worked successfully on white corn and the taller growing strains of yellow corn.

It is reported that one man, driving a tractor-mounted picker, can harvest 10 to 12 acres per day of white corn running around three and a half tons to the acre. This is equivalent to the labor of eight or nine men picking by hand. 830

Technical Topics

CHOCOLATE TREATMENT—The old chocolate conche, with its huge bed and heavy stone roller, took from 72 to 120 hours to grind, aerate and blend the cocoa, cocoa butter and sugar into a smooth paste. Through a careful study of the various functions of this cumbersome old apparatus a machine has now been designed which accomplishes all the desired results in from 8 to 24 hours. It is even claimed that the chocolate paste produced on the new equipment is better than that of the old conche in labor and in simplicity. 831

CERAMIC COMPOSITION—Electrically conductive coatings of a ceramic type composition can now be used on a wide variety of non-conductors including glass, plastics, porcelain, soapstone, wood, cloth and paper. Different formulations of the material are being produced to meet varying requirements of different base materials and degrees of adherence and film toughness. Coatings are dull, metallic gray in appearance. 832

SHOE COATING—Shoes coated with a solution of vinyl resin are reported to protect the wearer against allergy, dermatitis and folliculitis caused by oils and solvents. The solution is said to be impervious to sulphur-base cutting oils, kerosene, paint, lacquer, cleaning and degreasing compounds and other organic solvents and leave the leather flexible. It will protect and greatly extend the life of shoes. 833

LARVAE CONTROL TESTS—Toxicity tests of phenothiazin insecticidal sprays and dusts for control of larvae of the codling moth showed that the addition of bentonite or slaked lime decreased the effectiveness. 834

WATER SOFTENER—Sodium alginate is advanced as a water softener and remover of boiler scale. These properties are attributed to the fact that, combined with calcium, it forms an insoluble globular mass which envelops other precipitates and sediment to give a soft, pasty sludge that is removable by regular blowdown or swilling. 835

INSECT REPELLENT—Dimethyl phthalate has been found far superior to Citronella and other preparations as an insect repellent. Now on allocation, it will be a great advance in repelling mosquitos, fleas, flies, gnats and chiggers. 836

MOSQUITO LARVAE KILLER—Paris green (copper aceto-arsenate) has been found so toxic to mosquito larvae that less than one ten-millionth of a grain can destroy a larva. This new application is being widely used in the South Pacific and in Italy. 837

SILVER STERILIZES WATER—Interesting results in the use of silver for sterilization of potable water have been found by the Indian Tea Association. This process has been in use at 40 labor camps in India. No taint is imparted to the water. In this respect it is superior to chlorination and continual tests show satisfactory bacterial control. 838

POLYTHENE—Polythene plastic applied by the flame-spraying of metals method is tough and highly impermeable, and when applied over metal surfaces provides a high degree of protection against brines, chemicals, and other corrosive agents. 839

PRESERVATION OF DESICCATED BLOOD-GROUPING SERA—The preservation of desiccated blood grouping sera has been effected by diluting with such dried powdered substances as sucrose, dextrose, sodium chloride, or other non-hygroscopic salts which do not affect agglutination. 840

RESINOIDS—Natural extractions such as resinoids from storax, Peru balsam, benzoin and oakmoss are necessary as fixatives and aromatics in the use of lavender odors in all powders for the cosmetic industry. 841

CHEMICAL GERMICIDES FOR RINSING DISHES—A laboratory method for the evaluation of the efficiency of chemical germicides used for rinsing hand-washed dishes is in process of development. After sufficient progress has been made with this method, it is hoped to extend the project to the field of machine-washed dishes. 842

REPELS JAPANESE BEETLES—A satisfactory repellent for Japanese beetles consists of Bordeaux mixture (4-4-50) with lead arsenate. 843

Every effort will be made to furnish additional information on these articles. Where such information is not obtainable, we will refer inquiries to the original source of the article. Write to National Can Corporation, 110 East 42nd Street, New York City. Please mention the number at end of article—also name of the magazine you saw it in.

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Formula for Use: 3 oz. Klenz-Aire Deodorant Oil—3 oz. Formaldehyde U. S. P. 40%—Balance, water to make one gallon.

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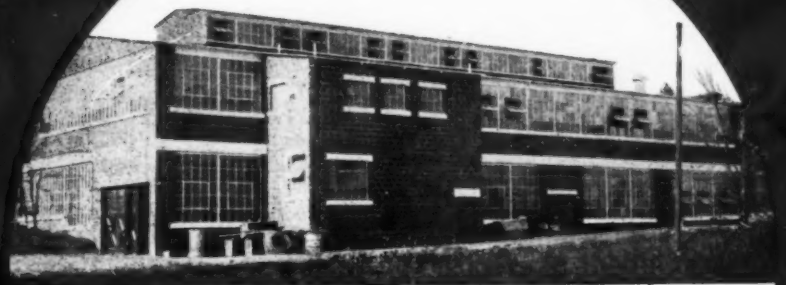
Rose

Think of the time and money you've spent filtering and decanting your liquid soaps after they've been perfumed. Now you can save all this effort and expense by using Aromatic's Floral Soap Odors, for these perfumes remain clear in most liquid soaps and require no filtering or decanting. We suggest the use of 12 oz. to a 50 gallon drum.



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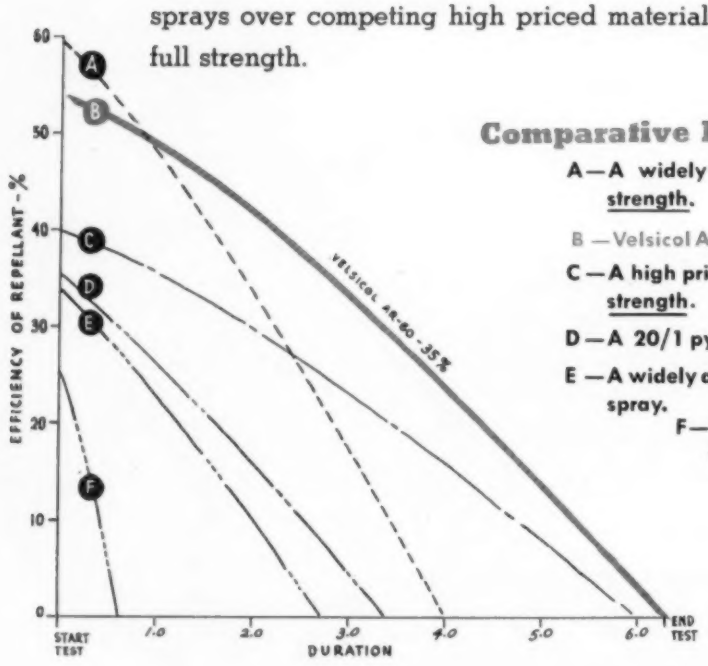
VELSICOL AR-60

There is 100% agreement that repellency is the one indispensable property of a livestock spray. No matter how good a spray may be with respect to knockdown and kill (and VELSICOL AR-60 sprays rate superior AA performance) unless a spray possesses repellency, cattle remain the prey of harmful flies and insects. The accompanying chart indicates comparative repellencies based on scientific tests. It is authoritative evidence of the superior repellency of AR-60 sprays over competing high priced materials, many of them used full strength.



Comparative Repellency Chart

A—A widely advertised repellant—full strength.

B—Velsicol AR-60—35%.

C—A high priced synthetic toxicant—full strength.

D—A 20/1 pyrethrum spray-concentrate.

E—A widely advertised commercial stock spray.

F—Another high priced synthetic toxicant—full strength.

VELSICOL

SPECIFIC PROBLEMS. SAMPLES AND INFORMATION FURNISHED UPON REQUEST

Announcing

VELSICOL

For Your 1945 Household Sprays

3 IMPORTANT IMPROVEMENTS

1. MORE CONCENTRATED TOXICANT
2. IMPROVED ODOR
3. GREATER VALUE PER UNIT KILL

You will be pleased by the mild odor characteristic of AR-50 *SPECIAL* even in undiluted concentration . . . You will be impressed by the power of AR-50 *SPECIAL* . . . It yields AA sprays in relatively low concentration . . . and you will be gratified by its dollar value and by the wide customer acceptance that will greet sprays based on this effective toxicant.

VELSICOL Corp.

GENERAL OFFICES: 120 E. PEARSON ST. CHICAGO 11, ILLINOIS

FOR COMPLETE INSECT CONTROL USE THE VELSICOLS. CONSULT US REGARDING YOUR

LET US SHARE

Acme Photo

OUR TOMORROW > >

with those who have learned to share

in the midst of war!

IN SOME place of honor in your place of business, there is a Scroll of Honor. It bears the names of those who have left the production line for the front line.

Those boys have learned to fight and kill and die . . . but they have learned to share, too . . . to share even little things like a letter or a package from home with their buddies, or precious candy rations with half-starved natives.

Now it's up to us to see that we share with them the bright tomorrow they are earning for all of us today.

It's up to us to plan jobs now, *better* jobs, for those who come home.

God willing, may that day come soon.

This Message is Published by

MAGNUS, MABEE & REYNARD, INC.

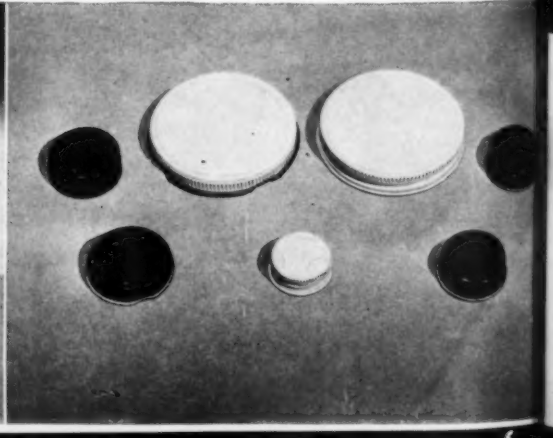
IN THE INTEREST OF ALL

WHO ARE FIGHTING TO MAKE PEACE ON EARTH A REALITY

THE ANCHOR HOCKING GLASS PACKAGE COMPLETELY RECONCILES ALL THE DIVERSE DEMANDS OF EXECUTIVES, DEPARTMENT HEADS AND SALES FORCE

Policy executives want a package which protects products from deterioration, spoilage and loss of virtues until consumed, thus assuring consumer satisfaction and eliminating complaints and returns. Treasurers and purchasing agents are interested in initial and production costs, and in the long-run economy of having the right package for the job. Production heads want packages accurate in capacity and finish, resistant to shocks of high-speed operations, and economical on labor costs through ease and speed of handling. They also prefer a supplier able and willing to lend expert technical and research assistance when needed. Chemists demand an airtight, leakproof, moisture-proof package, impervious to the chemical action of the product itself, and offering full protection until the product is consumed. Sales and advertising men want a package which invites product inspection, recognition and acceptance, and meets the consumer's preference for easy opening and resealing.

From all these points of view, an Anchor Hocking glass container, sealed with the correct type of Anchor metal or plastic cap for an airtight, leakproof, moisture-proof seal, forms the ideal package for your products.



WILL THE GLASS PACKAGE YOU RECOMMEND SATISFY THE DIVERSE REQUIREMENTS OF THIS GROUP, MR. HIGBEE?
FROM ALL POINTS OF VIEW, ANCHOR HOCKING GLASS PACKAGES SATISFY

A. V. HIGBEE, one of Anchor Hocking's ablest and most popular men, has been a member of the Anchor Hocking family for 25 years.

CBS

"Meet Corliss Archer" every Thursday evening, entire coast-to-coast network CBS.

ANCHOR HOCKING

GLASS & CAPS

ANCHOR HOCKING GLASS CORPORATION • LANCASTER, OHIO

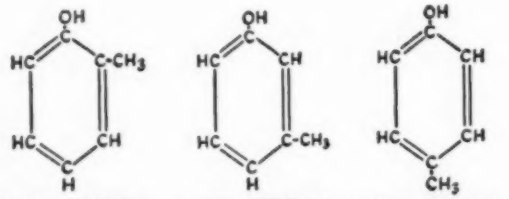
KOPPERS TAR ACIDS

Koppers entire production of cresols and cresylic acids is derived from tar acids present in coal tar from by-product coke ovens. Among grades of tar acids produced, Koppers classifies as cresol all those of not less than 99% purity, distilling 50% off below 204°C. in which phenol does not predominate, and classifies as cresylic acid all those of not less than 99% purity, distilling 50% off at or above 204°C.

Samples gladly furnished upon request. Shipments subject to Allocation Order M-27. Koppers Company, Inc., Tar and Chemical Division, Pittsburgh 19, Pa.

Natural

Cresols

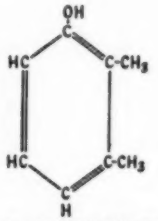


ortho-CRESOL **meta-CRESOL** **para-CRESOL**

Pure ortho cresol, melting point 30.4°C., 95% meta cresol, U.S.P. cresol, meta para cresol, and many specified blends of the three cresols with some phenol and xylenol content are available. Composition of commercial grades can be varied as desired except with respect to the naturally occurring percentage of meta cresol to para cresol.

Cresylic Acids

Natural



1, 2, 3 XYLENOL
(Xylenols are dimethyl phenols of which there are six)

Grades available include—those in which cresols predominate . . . those of approximately equal parts of cresols and xylenols . . . those in which xylenols predominate . . . those composed almost entirely of xylenols . . . and those of high coefficient value boiling above the xylenols. Composition can be varied as desired except with respect to the naturally occuring ratio of one xylenol to another or one cresol to another boiling at almost the same temperature.

KOPPERS

The Industry that serves all industry

It's a whole lot later than some people realize

● Just step into a store today and look at the fine products on display.

Glass is here, there and everywhere—more and more of it every time you go back.

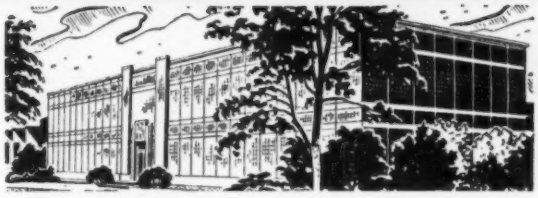
Adding eye-appeal to brand acceptance makes a sales team that is hard to beat.

War has only speeded up the swing to glass. And what is being learned now about the sales appeal of fine products in glass containers is going to be a powerful sales weapon in peacetime competition.

Eye-appeal added to brand-appeal is establishing famous brands more firmly in housewives minds.

Don't let competition get too far ahead in selling by sight. It won't slow down when peace comes. As one of the leading makers of glass containers in the world, we are interested in glass being used where glass serves best . . . where eye-appeal is buy-appeal. If you wish to master future markets, use the help of master salesmen, Duraglas Containers.

OWENS-ILLINOIS GLASS COMPANY
TOLEDO, OHIO



1. America's most completely equipped container research laboratories—located at Toledo, Ohio and San Francisco, California.

2. The "know how" resulting from more products going to market in Duraglas containers than in any other brand of glass.

3. Twenty strategically located plants with the most modern production facilities.

4. Duraglas Customer Service from the production line to the consumer's mind. Quality Control . . . Packaging Research . . . Merchandising and Sales Promotion . . . National Advertising in leading magazines . . . Fred Waring and his Pennsylvanians in a "Lift to Selling" every Thursday evening. See your local paper for time and station.

Duraglas
TRADE MARK REG. U. S. PAT. OFF.
CUSTOMER SERVICE

•

All designed to help you sell your products in Duraglas containers.

Something for you to think about:—

Insect Leg Paralysis*

Excerpt from our patent...applied for
April 18, 1936—granted Dec. 23, 1941.

*QUOTE: "A further object of the present invention is to provide an insecticide capable of *killing* insects which *alight* upon a surface *coated, painted or sprayed* therewith." UNQUOTE

Since 1936, Ticks (those attacking both animals and human beings), Bedbugs, Fleas and other insect pests have been repelled or killed by walking over surfaces properly sprayed or painted with our special insecticidal chemicals.

This is our invitation to you to join our customers at the head of the parade.

WHITMIRE RESEARCH LABORATORIES

339 SOUTH VANDEVENTER • SAINT LOUIS 10, MISSOURI

WRL

Manufacturers of
HYDROGENATED ROTENONE, ROTENOID AND SEMI-SYNTHETIC CHEMICALS

Hidden assets for a thousand products

"From just one basic source, Hercules Powder Company has extracted a whole series of specialized products widely used in paints, varnishes, lacquers, soaps, insecticides, electrical insulators, linoleum, ink, plastics, detergents, adhesives, cement, rubber, paper coating. Only by long years of painstaking research has Hercules been able to develop the complex field of terpene and rosin chemicals."

DAVID DIETZ, *Science Editor of Scripps-Howard Newspapers, Author, Pulitzer Prize Winner*

EXTRA STAMINA FOR CONCRETE. Vinsol* resin helps keep concrete surfaces smooth and long-wearing. Interground with cement, it enables concrete to withstand scaling and corrosion due to frost and thaw and the action of ice-removing agents.

STRETCHING RUBBER SUPPLIES is one of Hercules' contributions toward rubber conservation. Solvenol* is used as a penetrant, softener, and swelling agent in the reclaiming of scrap rubber. It is now under allocation for this war task.

CLOSE SHAVE FOR PIGS. In packing plants, pigs are coated with a special resin, Brisgo*. When the Brisgo, applied hot, has cooled and congealed, it is peeled off like a banana skin and with it comes every hair and all the stubble.

RESIN AGAINST THE SEA. Pentalyn* resin permits use of domestic linseed instead of unobtainable foreign oils in making the tough, salt-water-resistant protective coatings essential to our ship-building program. Makes *more* paint with *less* critical materials.

*Reg. U. S. Pat. Off. N1-43A

HERCULES POWDER COMPANY
INCORPORATED
961 MARKET STREET, WILMINGTON 99, DELAWARE

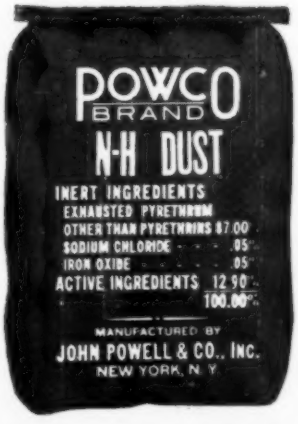
For *QUICK ACTION* and *DRIVE OUT* of Crawling Insects

USE POWCO NH DUST

Powco NH Dust, a nitrated hydrocarbon derivative, is meeting with nation-wide approval by packagers of flea and louse powders, roach powders, and for service work against roaches, bed bugs and silverfish. Backed by Powell research, NH Dust is ready to do a big job; it has quick-action and drive-out, coupled with ability to kill insect eggs, and long residual action.

POWCO BRAND
REG. U.S. PAT. OFF.

Pyriscents—Powco Pyriscents hide "difficult to cover" ingredients without reducing the toxicity of the spray. Available in many odors and 100% efficient and economical because they are completely oil soluble.



JOHN POWELL & CO., INC.
114 East 32nd Street, New York City.

KILLING POWER—that's the thing!

Thanks!

THE RESPONSE WAS TREMENDOUS!

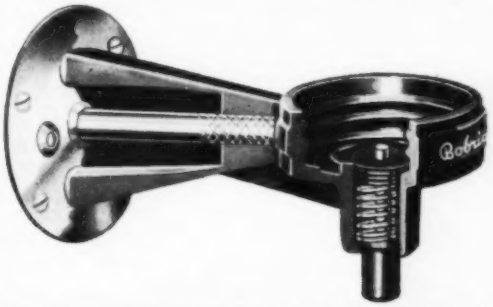
We say "Thanks" to our hundreds of customers in all parts of the country for the flood of orders received in response to our announcement that we had resumed the manufacture of Model No. 13 Liquid Soap Dispensers.

Dispenser replacements and new installations can now be made.

Increase your liquid soap sales!

Order a quantity of Bobrick Model 13 now!

We couldn't improve the mechanism, so we improved the design. No. 13 Liquid Soap Dispenser is PRE-WAR QUALITY and PRICE — POST-WAR DESIGN!



EXCLUSIVE BOBRICK FEATURES

- Unbreakable plastic body
- Steel reinforced bracket
- Steel backplate for fastening to wall
- Fills from top
- "Duraglas" globe — toughest glass obtainable
- Globe cemented to body
- Famous Bobrick Pre-war Push-up Valve

MORE STRENGTH

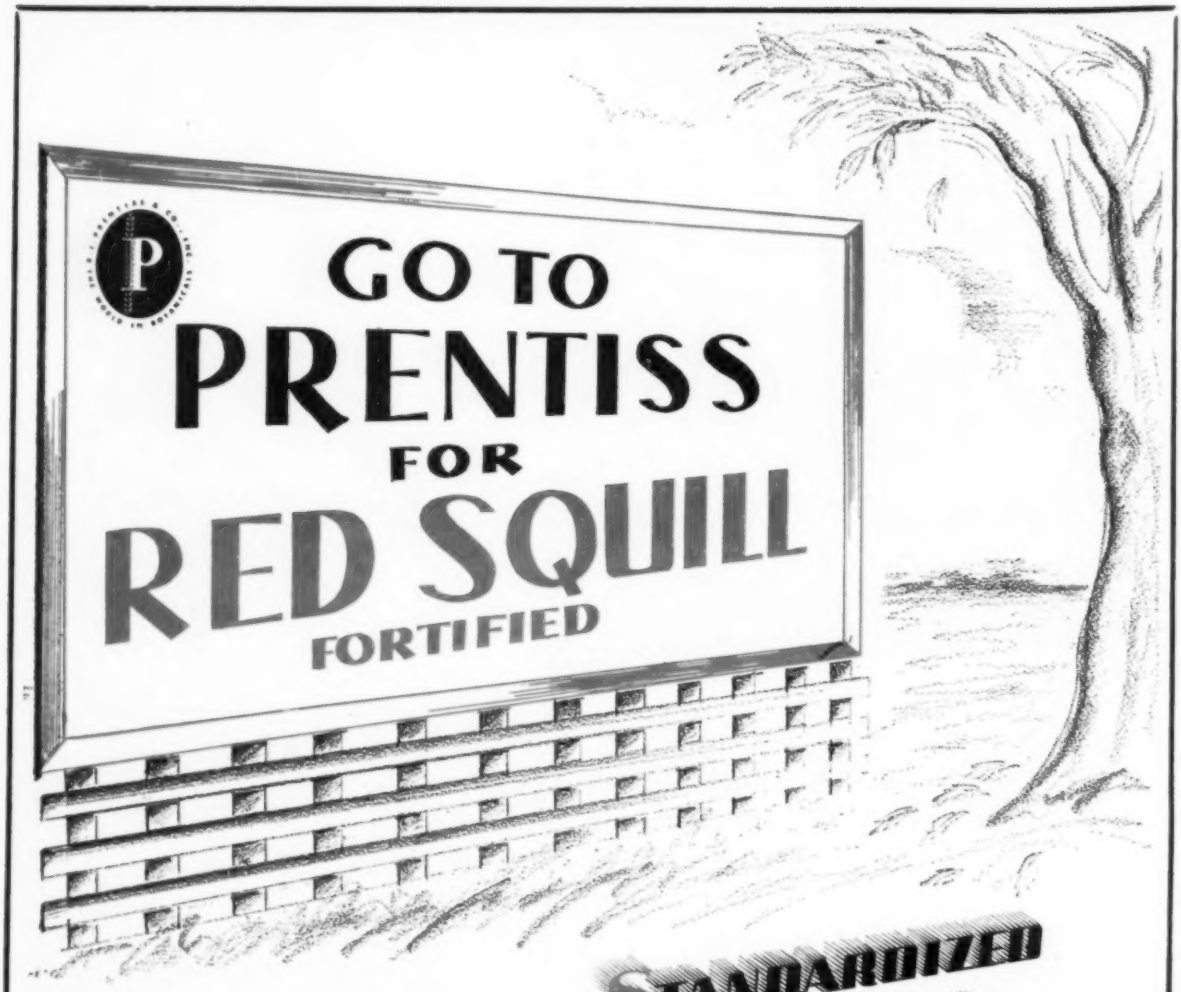
The attractive polished ebony black body is firmly bolted and cemented to steel backplate and bracing rod to give more strength. This is an Exclusive Bobrick Development assuring longer life . . . better service.

Bobrick

MANUFACTURING CORPORATION

2619 SANTA FE AVENUE, LOS ANGELES 11, CALIF.

Over a million — used by millions



STANDARDIZED
ACTIVATED
FORTIFIED
EFFECTIVE

Go to headquarters for Fortified Red Squill Powder. Prentiss can meet your requirements for this non-poisonous raticide with standardized killing power. Prentiss' Fortified Red Squill Powder is manufactured from Urginea maritima (U. scilla), a perennial plant growing wild along the Mediterranean Sea. It is a specific poison to rodents and is relatively non-poisonous to human beings, domestic animals, and pets. It may be used with safety about places where foods are prepared and stored.

Prentiss' Fortified Red Squill Powder is Activated and Standardized to meet the recommendations of the Fish and Wildlife Service for a Minimum Lethal Dose of 500/600 mg/Kg of rat.

If you have a rat control problem or are interested in marketing a retail package, write us for information and prices. Prentiss is producing Fortified Red Squill Powder daily and can make immediate shipment of your needs.

R. J. PRENTISS & CO.

80 JOHN STREET, NEW YORK 7, N. Y. 9 SO. CLINTON ST., CHICAGO 6, ILL.

"We've come to stay!"

Not so the perfume we create for your sprays. It does the job in hand—and is on its way out hand in hand with the killing agent. It takes something of an artist, in perfume-chemists, to accomplish this. We have many of them.

VAN AMERINGEN-HAEBLER INC. • 315 FOURTH AVENUE • NEW YORK 10, N. Y.

DURING this Holiday Season — let us believe and hope that during the coming year mankind will be endued plenteously with the spirit of Christmas — Peace on Earth to men of good will — and as we think of our loved ones in the four corners of the earth — let us resolve to make our contribution to lasting peace by giving Bonds for Christmas — that they who give their all for us, shall not have given in vain.

COLE LABORATORIES

23rd ST. & 37th AVE., LONG ISLAND CITY, N. Y.

ABOUT *NEOCID**

NEOCID is the generic term given to specially formulated compositions containing *GNB-A*-DDT* which have been developed by Geigy for the control of insects affecting man and animals.

NEOCID compositions at suitable concentrations for household sprays and powders did not cause injurious effects on humans according to recent toxicological data.

NEOCID active principle controls a wider range of insects than any insecticidal agent yet developed.

NEOCID compositions possess residual control properties unknown until the discovery by Geigy of *GNB-A*-DDT* as an insect toxicant.

NEOCID concentrates will be offered by Geigy for further extension by spray and dust manufacturers when *GNB-A*-DDT* is released for civilian use.

**Registered in the U. S. Patent Office.* Insecticidal compositions containing DDT are covered by U. S. Patent 2,329,074

GEIGY COMPANY, INC.
INSECTICIDE DIVISION

89-91 Barclay Street **New York 8, New York**

Zip-On Floor Treatments

ZIP-ON Rubless FLOOR WAX

AN especially high-grade emulsion wax for the trade . . . designed for easy and fast application . . . giving high gloss . . . unusually water resistant . . . maximum non-skid properties . . . will not jell or become pasty in storage . . . gives a durable and attractive finish . . . can be sold to industrial and institutional customers with full confidence . . . write us for sample and prices . . .

* * *

Our full line of floor-treatments also includes paste and liquid solvent waxes, floor sealers, gym finishes, etc., as well as metal and furniture polishes . . . we specialize in bulk and private brand products for the trade.

* * *

SHAWMUT SPECIALTY CO.

313 CENTRE STREET BOSTON 30, MASS.

Zip-On Floor Treatments

INSECTICIDE MANUFACTURERS

IF YOU USE A CHEMICAL INSECTICIDE BASE
***YOUR INSECTICIDE* NEEDS**
'petromask' PERFUMES

IF YOU USE AN ODORLESS INSECTICIDE BASE
***YOUR INSECTICIDE* DESERVES**
'petromask' PERFUMES

DREYER'S PERFUME LABORATORY WHERE PERFUMES ARE CREATED

'petromask'
FLY SPRAY PERFUMES
$2.50 *per lb.*

GARDENIA "petromask"	No. 1166
JASMIN "petromask"	No. 1167
LILAC "petromask"	No. 1168
MIMOSA "petromask"	No. 1169
NEW MOWN HAY "petromask"	No. 1171
ORANGE FLOWER "petromask"	No. 1171
ROSE "petromask"	No. 1172
ORANGE FLEURS "petromask"	No. 1173

Trial Pound or Samples on Request

P. R. DREYER INC.
119 WEST 19th STREET
NEW YORK 11, N. Y.
CHICAGO — BOSTON — LOS ANGELES

Consumers COAST-TO-COAST *Reveal...*

HERE ARE THE *5* MAJOR REASONS

HOUSEWIVES GAVE IN RECENT NATION-WIDE SURVEY

- **Cans are safer!** They don't break, chip, leak or tear.
- **Cans protect your health!** Cans are sealed better—less chance of dangerous leakage.
- **Cans protect product quality!** Insecticides are protected from air- and light-induced chemical changes.
- **Cans are more convenient!** They're easier to handle, to store, to open, to dispose of after use.
- **. . . And they're more economical!** Cans are less expensive.

SO YOU, in planning your post-war packaging, can take advantage of these proved consumer preferences . . . and plan now to pack your product in that familiar, well-liked container, the steel-and-tin can!

★ ★ ★ ★ ★

BIG ADVERTISEMENTS IN FULL COLOR BOOST PUBLIC PREFERENCE FOR CANS

Every month more than 30,000,000 printed messages—full pages in full color—are reminding consumers of the many advantages of cans.

The forceful and convincing sales story of the steel-and-tin container reaches most American families through leading Sunday newspaper supplements and the ten great national magazines shown here.

CAN MANUFACTURERS' INSTITUTE, INC., NEW YORK

NO OTHER CONTAINER PROTECTS LIKE THE CAN

Synthetic PINE DISINFECTANT

PINE INDU-CIDE WAS THE FIRST SYNTHETIC PINE DISINFECTANT INTRODUCED IN THE DISINFECTANT FIELD—AND TODAY IT ALSO HOLDS THE DISTINCTION OF BEING THE MOST POPULAR.

There are several reasons why Pine Indu-Cide has always been "tops".

The synthetic phenols used in its manufacture are the least irritating—resulting in a disinfectant with minimum skin irritant qualities. In other words, it's safer.

Pine Indu-Cide is manufactured from pure steam distilled Pine Oil, vegetable oil soap, Ortho Phenylphenol, Chloro-2-Phenylphenol, and water. Only the finest and purest ingredients.

Supplied in three Phenol Coefficient strengths:

COEFFICIENT 5
COEFFICIENT 10
COEFFICIENT 15

Where high freight rates over long distances are involved we suggest purchase of the high Coefficient grades for dilution with water upon arrival at your plant.

Pine Indu-Cide forms milky emulsions in water, its Phenol Coefficient value is guaranteed against both Eberthella typhi and Staphylococcus aureus.

The characteristic odor of natural Pine Oil Disinfectant is predominant.

As a house specializing in the manufacture of finest quality germicides for over a third of a century, we are proud to offer the Indu-Cides —we know you will feel the same pride in reselling them to your trade.

FOR A SAMPLE AND COMPLETE INFORMATION, WRITE

Baird & McGuire, Inc.

St. Louis, Mo. Baird's TRADE REG. MARK Holbrook, Mass.

B-M SPECIAL CLEANER

Spicy Odor!!

Not only is B-M SPECIAL CLEANER pleasant to use because of its remarkable effortless cleaning power but it also has a new and different odor—leaves premises with a really clean and refreshing air. A spicy, light fragrance never before achieved with commercial floor cleaning compounds.

B-M SPECIAL CLEANER isn't "just another scrub soap" or a "war-time soap substitute" or an old product under a new name—it is a brand new formulation, super-concentrated and one which you can sell to your customers without any hesitation whatsoever in regard to the job it will do.

What's more, the ingredients used in its manufacture are not at the present time on the critical list and we can deliver this SPECIAL CLEANER in any quantity desired from single 55 gallon drums up to carloads.

We can't say much more about B-M SPECIAL CLEANER—we feel sure that a trial will convince you it is far superior, from any viewpoint, to any other liquid cleaning preparation on the market.

A One Gallon Trial Sample

is Yours for the Asking

BAIRD & McGUIRE, Inc.

ST. LOUIS, MO. Baird's TRADE REG. MARK **HOLBROOK, MASS.**

Winter-phene

America's most discreetly scented germicide—designed for the buyer who wants to use disinfectant, but doesn't want everybody to know he's using it . . . . by

Baird & McGuire, Inc.

St. Louis, Mo. Holbrook, Mass.

A Prayer

PLEASE preserve and protect those we love — those fighting this earthshaking battle for democracy, honor and love — may it be Thy will for an early victory.

And may the blessed souls of those brave men who gave their lives for us rest forever in eternal, heavenly peace — knowing they died for something fine ——

And please God give those of us who must do our fighting without a gun — the will and strength to keep our land a democratic, honorable, and lovable place that those near and dear to our hearts will be proud and happy to return to ——.

SANITARY PRODUCTS

A SECTION OF SOAP

Official Publication National Association of Insecticide & Disinfectant Manufacturers

THE current meeting of the National Association of Insecticide & Disinfectant Manufacturers in New York marks the completion of thirty years' activity since its founding in 1914. Over the years, both membership and the scope of its work have steadily expanded. Of the handful of diligent men who constituted its founders, only a few remain with us today. Others have taken up where they left off. The membership has grown to the point where it embraces today most of the leading manufacturers of household insecticides, disinfectants and allied sanitation products not only in the United States, but in Canada as well. In its work, it has made the most of its time. May it continue strong and active for another thirty years!

SCARCITIES invariably bring forth substitutes. The present scarcity of pine oil is no exception in the disinfectant field. Various and sundry substitutes for pine oil disinfectant have found their way to market. Most of them look like pine oil disinfectant, smell like pine, and some have a coefficient higher than a true pine oil disinfectant. Some are good products and are likely to continue to be manufactured and sold after pine oil is again in plentiful supply. Others are not so good.

Instances have been reported where these pine-odor products are being offered as pine oil disinfectant by salesmen. No manufacturer would be stupid enough to offer or label a substitute as a true pine disinfectant unless it were such. But sometimes jobbers' salesmen are more difficult to check and control. That the salesman's say-so and the product label are not in agreement is frequently never noticed. And that is how they get away with it!

IF THERE continues to be one question which puzzles the average manufacturer of insecticides, it has to do with the safety of DDT in various and sundry insect killers, both household and agricultural. For use in aerosols, oil sprays, and in some agricultural products, DDT has been labeled both dangerous and perfectly safe almost simultaneously by different government departments. Thus far, the material has been used in millions of cans of louse powder without any published reports of untoward effects. Maybe the time has been too short to obtain a genuinely scientific answer. If that be so, then would it not be better to admit this fact and avoid the issuance of conflicting reports which have so completely confused most insecticide manufacturers?

As things stand right now in the light of these reports, there is doubt that insecticide manufacturers could run the risk of using DDT in their products, even if it were immediately available to them. And if the situation has not been clarified by the time the war ends, irreparable damage to this product as an important insect control material may be done.

N.A.I.D.M. IN ANNUAL MEETING

DR. C. C. McDONNELL

JOHN RODDA

MAJOR GEORGE FIELDING ELIOT

THE 31st annual meeting of the National Association of Insecticide & Disinfectant Manufacturers opened at the Hotel Roosevelt, New York, Monday morning, December 4, with a full program of discussions by Army, government and civilian specialists in the insecticide, disinfectant and sanitary products field scheduled for the closely-packed two-day session. The program for the meeting follows the lines of the tentative draft published in *Soap and Sanitary Chemicals* last month, the only amplification being the detailed list of speakers from government agencies and the topics which they cover. Most of the government speakers are scheduled for the Tuesday morning session. Heading the list is John A. Rodda, chief of the Insecticide & Fungicide Unit, Chemicals Bureau of WPB, who is to speak on "The Current Supply Situation for Insecticide Raw Materials." Other speakers from the Chemicals Bureau of WPB include the following: L. A. Schlueter, chief of the Aromatics & Intermediates Branch, speaking on "Coaltar Chemicals for the Disinfectant Industry"; and Dexter L. Lewis, chief of the Naval Stores Unit, speaking on "Pine Oil Allocation."

The War Food Administration is represented by Dr. C. C. Hamilton, chief of the Economic Poisons Section, whose topic is "Economic Poisons in the War Program." Dr. M. D. Leonard of the Agricultural Chemicals Section, Food Price Division of OPA, is scheduled to speak on "How Household Insecticides Are Priced." Two representatives of the Office of Civilian Requirements are also scheduled to speak: Dr. George W. Fiero, chief of Pharmaceutical, Insecticide and Cosmetic Chemicals Unit, Chemicals, Drugs and Health Supplies Division of the OCR, who is to speak on "Household and Industrial Insecticides Containing DDT," and H. Lewis Hunter, chief of the Containers Section, Forest Products Division, who is scheduled to give a summary of "The Container Situation." Another speaker from the Washington scene is John B. Gordon, Washington representative of the N.A.I.D.M., who is to talk on "Washington Today."

Among featured speakers at 31st annual N.A.I.D.M. meeting will be Dr. C. C. McDonnell, chief of Insecticide Division, WFA; John Rodda, chief of the Insecticide & Funcicide Unit of WPB, and Major George Fielding Eliot, well-known military commentator.

A speaker whose talk is awaited with much interest by the industry is Dr. C. C. McDonnell, chief of the Insecticide Division, Livestock and Meats Branch, War Food Administration, who will address the group on "Revision of the Insecticide Act of 1910." Another high point on the program is expected to be the address of Major George Fielding Eliot on Tuesday afternoon, December 5. Major Eliot, who is a well known military commentator whose articles appear in the *New York Herald-Tribune* and are also syndicated widely elsewhere throughout the country, is to speak on "Our Far-Flung Battlefronts."

Arrangement of the program details for the convention was in charge of John Powell of John Powell & Co., New York, who took over after illness forced Melvin Fuld of Fuld Brothers, Baltimore, to surrender responsibility. Arrangements for the annual dinner scheduled for Tuesday evening, are in charge of Charles Opitz of John Opitz, Inc., L. I. City, N. Y. Group luncheons are scheduled at the Hotel Roosevelt for the two days of the meeting. So heavy has the advance registration for the meeting been that, particularly in view of the crowded

hotel situation in New York, it was apparent long before the meeting that the entire NAIDM group could not be accommodated at the Roosevelt. A number of nearby hotels, including the Commodore, Murray Hill, Plaza, and others, are being used to house some of these attending the sessions. The opening session, Monday morning, December 4, was given over largely to reports of officers and committee heads. Henry Nelson of Chemical Supply Co., Cleveland, president of the association, delivered the following report at the Monday morning session:

REPORT OF THE PRESIDENT

By HENRY A. NELSON

HENRY A. NELSON

MANUFACTURERS of insecticides, disinfectants and sanitary specialties are still concentrating most of their efforts on supplying the armed forces with the chemical products they need for the successful waging of the war and the saving of lives, the prevention of diseases, the maintenance of sanitary conditions, etc. How well the industry has responded to the many demands made upon it is familiar to all of us. As long as the war lasts our thoughts, our efforts, and our research facilities will remain directed towards aiding our military leaders in reaching their goals in whatever manner we may be called upon to do.

Nevertheless, it behooves us to take a look around and plan for the days when the war will be won—when competition will again be keen and supplies plentiful. Will the smaller business man be able to survive when the flow of war orders has ceased? What will conditions be?

Within two years after the end of fighting the drop in federal expenditures from 90 billions of dollars to 25 billions of dollars will represent the greatest and swiftest disappearance of markets in all history. Within a year after the fighting, eight or nine million men will leave the armed services; two million will leave the civilian government jobs and five million will be laid off by plants making combat ammunitions. Of thirteen million additional men making war goods, perhaps half will be laid off. Admittedly this is not a pretty picture, and the weak and timid might well tremble with fear. However, America is not a nation of weaklings. It is a nation of planners and doers—witness the many post war committees of various organizations throughout the land, our own included.

The limited time at my disposal this morning does not afford me an opportunity to dwell at length on the many signs which point to a prosperous post war period for our industry. Let us for just a few minutes together explore the possibilities—or rather a very few of the many possibilities—for the sale of our products.

It is no secret that the American Public is travel hungry. For nearly three years now men and women in every walk of life have not been able to satisfy their desire to visit places of interest throughout this country. They will want to travel again as soon as conditions permit. With an estimated 57 million people working and spending their income, most large cities will need new hotels. People are not going to line up as they do now for rooms and eventually sleep in sample rooms. Those tourists who patronize cabins and auto-courts will insist upon more modern accommodations with improved sanitary facilities.

With large travel comes the need for good restaurants; in fact, the President of the National Restaurant Association at the recent War Time Conference held in Chicago on October 14th stated that restaurants are serving 40-million people a day now. At the same conference other speakers pointed out that anywhere from 50 to 100 thousand additional restaurants will be opened within a few years after the war. Furthermore, statistics collected by the government state that industrial plant cafeterias have increased from 500 in 1939 to 11-thousand now. Think of what that means in terms of need for the products of our industry.

Nearly every city of importance is planning to build new hospitals or make additions to existing ones as soon as building restrictions are lifted. This building program will be carried on for many years, because with various "hospital plans" becoming more and more popular, the need for more and more hospital facilities will become greater and greater. And, when labor is again more readily available than it is now, existing hospitals will use thousands of dollars worth of soaps, waxes, polishes, disinfectants and other sanitary products to put their buildings in condition once again.

Almost every week we see signs of coming opportunities for our industry; in newspapers, in magazines; over the radio—all around us there are definite proofs that our industry will prosper. The *Wall Street Journal* recently carried a story about the Pull-

man Company planning to build a new type of travel coach with many improvements, including improved washroom facilities, greater cleanliness, as well as more comfort.

The newer type of factory buildings erected during these war years, with their up-to-date facilities, their asphalt tile floors, their carpeted board rooms, their spacious lobbies—do they not present us with a market for our products? The soldiers, sailors and marines who have learned to fight insects in the tropical countries—will they not be logical users of our insecticides once they return to their homes?

The workers who have become used to sanitary working conditions can be depended upon to desire them in their own homes as well. Housewives will more readily accept the newer kind of odorless disinfectants, air-conditioners, etc. You yourself will know of many other ways in which to expand your business. I have simply outlined a very few of the potentialities, all of which inspire confidence in the longer term of economic future of our industry.

It has been a real privilege to serve as your President this year. The cooperation of the Board of Governors, the Executive Committee and the many special Committees has been most helpful. Your Executive Secretary deserves credit for a job well done. To all who have worked so diligently for the success of our Association, my sincere thanks and gratitude. Tomorrow you will elect officers to serve you during the ensuing year. May it be their good fortune to see the end of the war during their term of office and may our members who are now serving their country return to us safely soon.

REPORT OF THE SECRETARY

By H. W. HAMILTON

H. W. HAMILTON

THIS cooperative association has faced war years, boom years and depression years. For 30 years, it has stood for progress, and each year has witnessed further advances in its many activities. Not only have there been advances, but the needs for the association are constantly broadening in scope. Originally formed in 1914 by a group of manufacturers to consider means of compliance with the Federal Insecticide Act of 1910, it is interesting to note that at these meetings we shall hear of a new proposed Federal Insecticide Act (or Ecomonic Poisons Act) to replace the now outmoded Act of 1910. We must again examine the proposed text and the significance of its application to our particular business.

Founded by a small group 30 years ago to cooperate with one another in matters of legislation, other problems soon developed. Standardization of tests by which products were to be checked for quality and value as well as for compliance with the laws almost immediately demanded attention. The establishment of the proper detailed procedure for the determination of the phenol coefficient of a few types of disinfectants was the chief problem 20 or more years ago. Committees worked diligently and with good results.

The laws have multiplied; there are the Federal Caustic Poisons Act, the Federal Food, Drug and Cosmetic Act, and Insecticide, Fungicide and Economic Poisons laws in many of the States. The legislative activities of this association remain a vital part of its reason for existence. Members receive notices of new and proposed legislation. We believe in fair and just laws. The unfair, unjust, "pressure group" type of law we shall oppose at all times. We look forward to cooperating in the enactment of good laws, but only when they are needed.

As laws have become more numerous and more involved, so also have the other problems of this industry become complex. Scientific advance in product development and use has continued to challenge the recognized methods of testing and standardization. This association, therefore, must bring together these new products with the modernized tests and standards. Then we must seek to have these tests recognized by those who purchase our products and by those who enforce the laws. Here then is provided the forum for this growing industry.

Briefly it might be well to scan some of the present activities—there is the new proposed Federal Economic Poisons Act, a revised Oregon Act, and 44 State Legislatures are about to meet; the standard methods for testing disinfectants are being reviewed, revised and the scope of the tests increased; the Peet-Grady test is up for revision with a possible change in the Official Test Insecticide, tests for crawling insects are being carried to a conclusion on both sprays and powders; clothes moth control tests are being perfected, and standards for floor finishes are being actively discussed. Another group of members is preparing to acquaint consumer industries and also non-industrial groups with our efforts through advertising and exhibits.

But, let us not forget that we are still at war. Today the greater part of the time of the association Executive Office is devoted to war activities. This is, and will continue to be, our first consideration until the end of this war. Inquiries from the war agencies and

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Safer handling of ECONOMIC POISONS

By DR. ALVIN J. COX*

Chief, Bureau of Chemistry
California State Department of Agriculture

THE subject of "Education for the Public in Safer Handling of Economic Poisons" is very broad and involves knowledge of uses and abuses of pest control materials. With increase in population and complexity of modern civilization, commercial practices have become standardized and single crop farming has largely succeeded subsistence farming. With increased acreages and fewer isolated areas, menacing pests have increased and have necessitated greater application of economic poisons on a wide variety of crops. If these agricultural industries are to survive and a farmer or fruit grower is to obtain a yield of marketable crops, it is necessary to spray or dust with economic poisons against plant diseases, and insects such as codling moth and tomato fruit worm. A knowledge of economic poisons hazards has become even more important with the increased number of victory gardeners who are unfamiliar with the potentialities for injury. Poisonous chemicals must be used, but present no difficulty when intelligently handled and stored. Whole new fields of agricultural chemicals sometimes open, such as use of chemicals for control of sap-staining fungi in freshly cut lumber, use of plant hormones for postponing fruit drop or for setting fruit, fumigation of fresh fruit in refrigerator cars, etc.

Among the common effective and economical sprays or dusts for fruits and vegetable insect pest control are lead arsenate, calcium arsenate, sodium fluosilicate, and nicotine—all recognized poisons. Any deleterious spray or dust residue must be removed in preparing fruit or produce for sale for human consumption, for uncontrolled poisonous spray or dust residue is a health hazard. In the early days of enforcement there were dangers of acute poisonings, but these always were small in comparison with the dangers of chronic intoxication, that is a slowly developing, insidious undermining of health with body changes and disabilities like those of chronic diseases. Successors to Japanese vegetable farmers are being educated by prosecutions and hearings. As a result of conscientious law enforcement with regard to spray or dust residue, the possibility of acute illness resulting from this source is slight.

Probably occasional poisonings from storage and use of economic poisons cannot be stopped any more than can automobile accidents, but care and use of agricultural chemicals can be circumscribed to make these operations safer. Civilization costs lives just as the lack of modern science formerly cost lives. The balance must be weighted as far as possible for the benefit of humanity. Most of the tragedies are directly attributable to carelessness and lack of alertness on the part of the user, and some of them are suicidal or malicious. Many of the avoidable ones are due to pranks, psychopathic egoists, drunkenness, and foolhardiness. With certain products there are types of hazards that do not exist with others. Many people are inherently careless and unless everyone can be made conscious of dangers there is not much to be done, but in the main people welcome education.

Education for the public through perfecting labels so that they will portray the exact poisonous status of economic poisons has done much, because most intelligent and careful persons do read labels. If sufficiently poisonous, an economic poison is required by the Poison Law of California to carry upon the label the word "Poison" and the vignette representing the skull and crossbones, printed in red on white background or the reverse, and also to carry the name of the poison and the official antidote. The labels of some corrosive poisons are required to bear an external as well as an internal antidote. If needed for a material an antidote should be included on the label, even if the Poison Law does not require it. It is no reflection on economic poisons to refer to them as poisonous, for in many cases they would not serve if they were not distinctly poisonous. Poisons should not be stored near foodstuffs or medicines, should never be left where irresponsible persons, children or animals can reach them, and each package should carry a warning to these effects.

Dilution of a product to the point where the poison insignia is not required does not permit an economic poison to be designated as "Nonpoisonous," "Safe," or "Harmless." If the diluted product is still effective against a pest it may be potentially injurious to human beings, and erroneous desig-

* Before Pacific Insecticide Institute, Claremont Hotel, Berkeley, Calif. Oct. 10, 1944.

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nations such as "Nonpoisonous" may encourage carelessness in handling. This Bureau has not objected to the expression on a label for screwworm repellent, "When used as directed the amount of material that an animal can lick off a wound will not injure it."

Some nerve depressants and other insecticides are either primary skin irritants or sensitizers; some are both. Certain individuals or families are hypersensitive (allergic) to coal-tar products, such as creosote, or to volatile petroleum fractions, as well as to many other products that may occur in paints, disinfectants, and other economic poisons. Several cases of dermatitis resulting from use of economic poisons have occurred. A laboratory worker separated by a door from a factory where grinding of pyrethrum flowers was carried on, in four days developed very serious allergic dermatitis due to pyrethrum dust. In another case wherein a new intensifier was insufficiently investigated as to its pharmacological effect, dermatitis was reported so often and unmistakably that enforcement measures were undertaken resulting in its withdrawal from sale.

In the absence of adequate information, many writers in daily newspapers and popular magazines have from time to time glibly said that certain economic poisons would kill insects but are entirely harmless to human beings and their domestic animals and pets. No such product is known to exist, nor is there such a pharmacological distinction between insects and other animals. Protoplasm is protoplasm wherever found. Any substance whether eaten or absorbed by contact that will injure insect protoplasm undoubtedly will injure protoplasm of warm blooded animals. Anything that may poison insects may be injurious to man, and statements must not go too far in minimizing the danger.

Some economic poisons have been forbidden or are limited in use. An economic poison containing arsenic or a compound thereof can not be registered for application to home furnishings or to clothing or other fabrics; nor can it be registered to be sprayed on citrus trees, for definitely provable lowered quality of fruit would result from such use. Nitrobenzene, also known as oil of mirbane, is not accepted in California as an ingredient of sprays to be used in living quarters. It is dangerously poisonous and deaths have resulted from its use in other States.

EVERYTHING is being done within jurisdiction of this Bureau to prevent distribution in California of any unlabeled poison, but its jurisdiction extends only to certain chemicals. It can take no direct steps to correct labeling or handling of purely decorative paints, volatile solvents, polishes, cleaners, or other solely commercial chemicals even though they may be hazardous and require some official action to regulate them on account of their explosiveness, injury to operators, or other dangers. Even temporary packages for poisons or service containers used on jobs should be labeled, for sometimes they are stored away and forgotten and the error discovered only after the material has been mistakenly used for something else and has caused irreparable damage.

The recent death from accidental poisoning of a fourteen-year-old boy in this State especially emphasizes the need for greater caution on the part of the public in handling poisonous pest control materials. According to report from the coroner's office this boy died from drinking an arsenical weed killer which had been carelessly stored in an unlabeled whiskey bottle. The material had been drawn from a properly labeled container about a year previously, and stored on a shelf without any identification or poison label. Cases of this kind indicate need for additional education to the end that a portion of poisonous material should never be removed from its adequately labeled container and stored in an unlabeled bag, bottle, or other container.

On the other hand, a Works Progress Administration worker in California drank weed killer of arsenic trioxide dissolved in strong caustic solution, kept in an unlabeled jug. Probably the victim believed he had found wine and, hoping to escape detection, drank hastily with fatal results. In another case, a group of men returning from a golf game, brought two bottles of whiskey and a bottle of garden spray in the back seat of an automobile. They stopped for a drink, and a mix-up of bottles caused the death of one of the men and the near-death of another. No law would have prevented these accidents.

Warehousemen and registrants should unite in an effort to have all seed-grains that have been treated with an economic poison for prevention of smut, labeled "Poison" or in some other equally protective manner. A user of a registered economic poison material whose trees or other crops are damaged by proper application in accordance with directions should report it, for this Bureau investigates any report of injury attributed to an economic poison to ascertain if violation of law is involved and to determine how to prevent or reduce the probability of recurrence. Not only is this a protection to the general public, but it affords a much appreciated service to manufacturers by whom the possibilities for injury and damage from their products might not otherwise be recognized. Clearness of thought and caution are necessary in discussing accidental poisoning cases, lest hysteria be developed against a necessary product, whereas it may actually be less hazardous than many other substances similarly used.

Types of cases of poisoning caused by accidents are as follows:

Dusting grapes with a fumigant-type dust (calcium cyanide) and without the necessary precautions in handling, caused the death of the operator. Two laborers applying weed-killer along a railroad right-of-way died, with indications of poisoning by absorption through the skin. A portion of a poisonous spray mixed for application to a home garden was swallowed by a 20-month-old child, who died the same day. Garden spray carelessly stored in a small unlabeled bottle was mistaken for cough medicine and administered to an 11-month-old child who died en route to the hospital. A mother placed the remaining portion of a poisonous garden spray in a pint bottle bearing an apple juice label; it was mistakenly drunk by her 11-year-

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old daughter, who died within an hour. While on a hay ride, a woman chewed some grain she took from an unlabeled sack in the truck; she became violently ill but was saved by prompt medical care. Slices of bread spread with rat poison were left in a pantry; prompt hospitalization saved the life of the person who ate the bread the following day.

Hardly a week goes by without notice that some little tot has been rushed to the hospital for treatment after eating ant syrup. Fortunately prompt treatment usually rescues the child. One case reported indicated the immediate cause of death of a child so treated may have been an overdose of copper sulfate administered as an antidote.

FUMIGATION has been surrounded with a number of precautions, but some accidents continue to occur. Structural and household pest control operators are continuously urged to exercise the greatest care in any fumigation work. Buildings should be examined to see that the plaster and floors are tight and free from cracks, and that the doors, windows, and vents from one room to another are securely sealed by tape to guard against leakage. Special warnings and other precautions should be taken to insure that premises are not occupied until thorough aeration has been completed after fumigation. In one case the gas spread into an adjoining but entirely separate building, possibly through an electrical conduit or plumbing connection. In another case, the bedding in a fumigated house had not been adequately aired after fumigation and residual gas absorbed in the bedding and pillows caused the death of a small child. Another individual walked into a reportedly unguarded home under fumigation and was taken out dead. In another case premises had been fumigated and were being aired. The guard had been removed and a warning sign placed on the door stating that aeration was in process and not to enter before 7:30. At 6 o'clock a man arrived, carried the sign inside and went to bed, never again to awaken.

These are just some of the disastrous results involving careless handling of economic poisons that have come to attention in California within the past few years. Cases involving human deaths are seldom given much publicity in the daily news, but are more numerous than generally realized. Many cases of injury to property or to animals do not reach the newspapers.

THE rapid increase in the use of synthetic organic chemicals illustrates the need for study to provide data for intelligently handling them. In November, 1943, at a meeting of the Agricultural Insecticide and Fungicide Association and the Pacific Insecticide Institute in San Francisco, the insecticidal effectiveness of DDT, more specifically named 2,2 bis (parachlorphenyl) 1,1,1, trichloroethane, was elaborately discussed. From the outset it was apparent that undoubtedly DDT would prove toxic to human beings and other animals as well as insects. I suggested that knowledge of its pharmacology and toxicity should keep abreast of its insecticidal effectiveness and contemplated use. An Eastern official passed me a pamphlet which implied no harmful effects from DDT when dusted onto the human skin or when inhaled. Nothing was stated about its effect when ingested by warm-blooded animals. A letter from Dr. Herbert O. Calvery, Chief, Division of Pharmacology, Food and Drug Administration of the Federal Security Agency, states:

"As a result of the fairly extensive studies we have made, we have come to recognize DDT as a treacherous poison. It is odorless and tasteless, and consequently can be consumed without knowledge. When dissolved in oil or in organic solvents, the drug is readily absorbed through the skin. In view of the information which we have accumulated to date, we are convinced that the compound will in sufficient dosages be quite toxic to men."

Possible industrial health hazards of new products should be anticipated. Problems constantly arise as to hazards to workers not only in mixing of chemicals but in making field applications. When a chemical is not acutely poisonous, generally little is known as to the extent of its injuriousness. Information should be at hand with regard to insidious chronic poisoning by newly developed materials, as well as to their acute toxicity, but unfortunately it sometimes takes years for the toxicity of a chemical to be adequately surveyed. Certain manufacturing and pest control operations involve handling dusts of unknown toxicity, and employees should be instructed in the use of masks to avoid inhalation and with regard to protective clothing or other shielding devices whenever these are required. Where the hazard is not definitely known, cautioning workmen is frequently neglected.

RIGID enforcement of the labeling and other provisions of the Economic Poisons Article with regard to distribution and sale of economic poisons only in the registrant's properly labeled container has done much to minimize accidental misuse of these particular poisons and to protect the public in this State. Desirable labeling not only complies with the minimum requirements of law, but effectively warns and states precautions against any hazards that may be involved in the use or misuse of a product.

Confusion between two similar brand name products of the same registrant resulted in injury to fruit trees when his dormant petroleum oil spray was erroneously used in lieu of his foliage petroleum oil spray. In like manner, confusion of products may injure human beings. The registrant could have averted the damage by adopting more clearly distinguishable brand names. To avoid this type of confusion, manufacturers should employ sufficiently dissimilar designations and particularly discourage use of nicknames for their products.

Protective labeling is sufficient for certain products and, depending on their characteristics and use, these may be sold by the public generally; only registered pharmacists are permitted to sell others; and still others may be sold solely on prescription of a licensed physician. It is the responsibility of a vendor to sell only original packages of economic poisons with the labels intact.

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of poison labels, the "industrial poison" black label, and the "skull and crossbones" red label. The latter was used for the more acutely toxic poisons of which 5 or 10 grams or less would cause the death of a human being. If coupled with conscientious interpretation of the character and uses, a differentiation into types would seem feasible, and would reserve complete respect for the skull and crossbones red label. If the public is too accustomed to any warning, it may become "battle hardened" and calloused. Promiscuous use of any warning destroys its value, like crying "Wolf," "Wolf" too often, or capitalizing the letters of all words for emphasis.

Consideration of style and type of package, especially for household economic poisons, is essential. The law confers jurisdiction not only over composition and physical condition, but also over containers of economic poisons. The container of an economic poison must not, by reason of its design, construction, or size, augment any health hazard inherent in the economic poison itself. Containers should be uninteresting and unattractive to children so as not to intrigue them. Several years ago after consultation with health officials, in the best interest of public health and safety, this Bureau refused registration for an ant poison in a common "crown" type bottle-cap and for a cockroach bait in a container open at both ends.

Tooth paste tubes should not be used as containers for an economic poison, as more and more food products are so packaged. To use such containers for economic poisons is dangerous to children, who are inherently attracted by them. Delousing material should not be in a tube similar to collapsible tubes containing glue used by children. It could readily be mistaken by a child who, having applied the delousing material and having found that the label didn't adhere, would be likely to lick the label to make it stick better. One applicant who was denied the privilege of regularly marketing ant poison in collapsible tubes wanted to lay out the filled and open collapsible tubes as ant jars in servicing gardens. In previous years some poisonous pest control products such as phosphorus pastes have been distributed in collapsible tubes. A collapsible tube is a highly dangerous container to have accessible to children, and in any event the contents get smeared over hands and under fingernails. This Bureau requires that the poison label be placed at the top of the tube where it remains visible after the tube has been partly rolled. Material of a high arsenical content proposed to be distributed in collapsible tubes presents a greater menace and is not registrable in California.

It has been suggested that the public be educated to associate a triangular, prickled, ridged, rough bottle, or other type of protective package, with household poisons. However, this might encourage carelessness with products not so packaged. A wide-mouth prickly glass container with a screw top and an appropriate applicator to protect the hands is an adequate alternate for a collapsible tube. The idea of a rough bottle is that in the dark it immediately suggests a poison and should be left alone. It is unlikely that any progress can be made in this direction during the war emergency.

PROBABLY the greatest hazard is with regard to household insecticides, and the most numerous accidents have been due to carelessness in homes and buildings. Even adequately-labeled containers of sodium fluoride should not be left around foodstuffs, for a teaspoonful may be fatal to a human being. Mistaking white sodium fluoride for baking powder, flour, or similar white foodstuff has caused many deaths. This particular chemical has been the cause of at least two spectacular mass-poisonings in other States, one reportedly accounting for 47 deaths and the other twelve. So much injury has occurred throughout the country that it is evident something more than adequate labeling of sodium fluoride and similar poisonous white powders is needed to protect the public. White powder insecticides and fungicides containing arsenic in any form, or fluorine in any form, for use in any building, ship, or similar enclosure, should be distinctly colored as a precautionary measure to provide a warning signal and to prevent their misuse for foodstuffs. Manufacturers generally have incorporated a pink dye in primary arsenicals, such as lead and calcium arsenates, and a Nile blue dye in fluorine compounds such as sodium fluoride. Conspicuously colored powders are not likely to be mistaken for foodstuff.

Legislation to require coloring of sodium fluoride roach powder is most urgent, for the colored product is just as effective and there are no complications. On account of the accidents resulting from sodium fluoride, persons have involved the whole ramification of economic poisons, and the attempts at relief with regard to roach powder have been caught on the rebound of opposition and frequently meet with failure. However, several states and municipalities have passed compulsory protective coloring legislation only to find that conflicting requirements under these state and local laws present a problem to national manufacturers. Coloring some products is impractical. It seems desirable that some type of uniform national and state legislation be obtained. Coloring of many acutely poisonous primary insecticides intended for use in and around institutions, home gardens, and households is feasible, and the expense and inconvenience should be incurred when it is known that it will accomplish results.

There might be some question as to whether the safeguarding to be achieved justifies coloring all economic poisons for agricultural use. Handlers of agricultural economic poisons generally take more adequate precautions, as they are more familiar with toxic chemicals than are householders. I have learned from confidential sources that twenty million pounds of dry mixed agricultural insecticidal dusts containing arsenic, fluorine, or nicotine are employed annually in California; this figure also has been verified from the quantities of dust fillers, diluents, and extenders used. This does not include forty million pounds of sulfur dusts, lime for Bordeaux mixture, and rotenone, pyrethrum, calcium cyanide and miscellaneous dusts. Some dust

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EXPERIMENT STATIONS REPORT

IN the attempt to fit agricultural research into the war effort so that maximum contributions might be made to food production, 77 per cent of the research projects under way at the various state agricultural experiment stations in 1943 underwent revision or readjustment in some form. Entomological investigation was necessarily affected with the rest but, because of the importance of insect control in wartime, research in this field suffered perhaps less in proportion than did other programs.

Examination of the 1943 annual reports of experiment stations available up to August 1 reveals trends and discloses highlights of accomplishments. From this record it is apparent that the outstanding problem was the search for new insecticides to replace unavailable pre-war products or supplement those in short supply. Coupled with that was the problem of determining practical methods for utilizing the war babies to get the most out of them, a task which included appraisal of spraying equipment to insure efficient and economical application of the control chemicals.

Closely related, also, were botanical and chemical studies of plants reputed to possess insecticidal elements that might be developed into new sources of supply. And then there were emergency problems, directly born of the war, which called for immediate attention. Army authorities, for instance, wanted data for their mosquito control program and, because of Delaware Experiment Station's previous outstanding contributions in this field the Newark institution's entomologists stepped in to supply facts on seasonal abundance necessary to guide control operations in the Fort duPont area and at other military posts.

In Idaho, again, the army's demand for dehydrated onions presented station entomologists with the problem of onion thrips control. For best results this new industry requires the growth of onion varieties extremely susceptible to thrips damage, but previously used control measures have been expensive and not always satisfactory. Laboratory experiments with a large number of insecticides produced two with some promise, these, according to the Idaho station report, being "Code 2" dust, a proprietary product, and tartar emetic, used as a spray in combination with brown sugar or sugar beet molasses. Field tests followed and final results established the suitability of either insecticide for control of the pest, along with a demonstration that they are "economically advisable."

Still another pest control problem, posed by the war, is reported from Arizona, where farmers have started cultivation of the guayule plant as a new source of natural raw rubber. The Mexican guayule, it has been learned, is susceptible to serious insect damage, so the Arizona station has begun collecting and identifying the pests, studying their habits and probing possibilities for their control. No findings of interest to insecticide manufacturers are yet available.

In Iowa the federal administration's program for assisting farmers financially presented the Ames entomologists with the problem of insect control in the corn bins of the Commodity Credit Corporation. Laboratory studies of seven volatile organic compounds and six mixtures of these compounds used as fumigants are detailed in the 8th annual report of the Iowa Corn Research Institute, where this conclusion is reported:

"B-methylallyl chloride has possibilities as a practical corn fumigant. Carbon tetrachloride shows much better toxic properties under the conditions of these experiments than have been generally attributed to it, comparing favorably with carbon disulfide and propylene dichloride. Any mixture of carbon disulfide and carbon tetrachloride would probably be about equally toxic under these experimental conditions."

Other tests of various fumigants on corn of different percentages of moisture are reported on and offered with the suggestion that "This information should lead to more efficient methods of treating bins in which the surface corn possesses a high moisture content."

South Carolina station at Clemson, S. C., also investigated control of rice weevils in farm-stored corn, with special attention to means for making farm bins sufficiently gas tight for effective fumigation, and to effective dosages of various fumigants.

Successful and practical control was achieved, the report states, with dosages of two pounds of chloropicrin or six pounds of carbon bisulfide per 1,000 cu. ft. of space. The tests, however, are regarded as "tentative" and further tests are planned with other fumigants, including ethylene dichloride mixed with carbon tetrachloride and methyl bromide.

The Connecticut station at New Haven, which has been engaged for some years on research on new and improved fungicides, reports two "of considerable promise." One of these, as yet without a trade name and known as disodium ethylene bisdithiocarbamate, also was found to have some properties of insect repellancy. This compound is water-soluble, giving a film-like cover over a sprayed leaf, a property sought for many years. The other new fungicide, recently developed, is juglone, a substance excreted by walnut roots. Laboratory tests with synthesized juglone, says the Connecticut report, prove that it is more toxic than pre-war copper oxide.

Connecticut experimenters also conducted a series of studies involving

techniques of applying sprays and dusts, and on the relation of concentration of toxicant and method of application to degree of control of pests, which, according to the report, reseulted in development of several ways to "stretch" the insecticide. Study of the effect of combining other insecticides with rotenone dusts resulted in more efficient use of the rotenone and produced the conclusion that "in many cases cryolite can be used in place of rotenone with satisfactory results."

Spray tests with new compounds to control red mite were carried out at New Haven in cooperation with U. S. Rubber Co., but of these the report says: "Although considerable progress has been made by the company in developing mite control without the use of rotenone, further experiments are needed to establish its usefulness in orchards." Another note, however, says, "preliminary cage tests with a new (unnamed) insecticide, which contains neither arsenic nor rotenone, were very promising and the material may prove valuable in apple maggot control."

New Hampshire station, Durham, N. H., reports that, in a study as to toxicity of various synthetic organic compounds dissolved in a petroleum base, three were discovered which gave promising performance. While not specified by name, these three represented two new groups of synthetic compounds the report states. Each was toxic to adult houseflies in reasonable concentrations and gave initial paralysis as well as ultimate death.

Search for substitutes for war-short insecticides occupied considerable attention at New York's Geneva station, the studies being concentrated on finding (1) alternates for mercury salts commonly used for maggot control on cabbage and cauliflower; and (2) alternates for rotenone-bearing materials and nicotine dusts in European corn borer control.

Some forty materials or combinations were tested as possible substitutes for corrosive sublimate and calomel, the two mercurials commonly used against cabbage maggots. Borax, dichlorethyl ether, formalin and certain dinitro compounds, "appeared to have distinct merit," but, says the Geneva report, "none of these, at the concentrations used, were found even to approach the mercurials in effectiveness or to offer any real promise as possible substitutes in root maggot control." Certain other materials among the forty tried out "appeared, for some reason, to increase, rather than reduce the amount of maggot infestation and injury," while still others tested, "appeared to have no influence on the amount of maggot injury." It was, however, found that, in the case of both calomel and corrosive sublimate, "where the generally accepted concentration of 1-1,200 was reduced by as much as even 50 per cent, decrease in control was surprisingly slight." This was suggested as one way to meet, at least partially, a possible shortage of mercurials.

Attacking the corn borer problem, the Geneva investigators concluded, after lengthy tests, that "Black Leaf 155, a fixed nicotine preparation commonly used as a summer spray for apples and other fruits, was the most promising existing substitute on the immediate horizon." When diluted with walnut shell flour to make a finished dust containing 4 per cent nicotine, good control was obtained and the station recommended this dust preparation as a war emergency control for European corn borer in place of rotenone and the "Dual-Fixed" nicotine dust previously in common use.

Among other projects at the Geneva station were studies of the physical and chemical properties of insecticides and fungicides; development of new fungicides; and control measures against specific pests of various fruits and vegetables. Reporting on a project involving the nature and control of tomato diseases, the Geneva scientists incidentally provide a good argument for insecticide use. "In addition to the actual increase in yield," says the report, "there was a material saving in the labor cost of harvesting the crop. Close observation revealed that regular commercial pickers took only 21 per cent as much time in picking a ton of tomatoes from sprayed plots as from unsprayed ones.

T ON 1943 INSECTICIDE STUDIES

A review of the latest reports on agricultural insecticide research by a group of state experiment stations

By H. H. Slawson

PREVAILING scarcity of rotenone and pyrethrum induced North Dakota entomologists to seek possible alternates for combatting cattle lice on the state's beef herds. Materials tested included nicotine, naphthalene, paradichlorobenzene, sabadilla seed, "Thanite," phenothiazine and sodium fluosilicate. Dusting sulfur (325 mesh), wheat flour or bentonite were used as carriers or diluents. Most satisfactory, states the report, was a sul-

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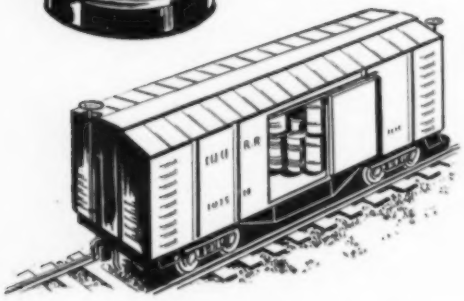

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fur dust containing not over 1 per cent nicotine. Since both nicotine and sulfur are readily available, comparatively low in cost and effective in control of lice, this dusting mixture was recommended by the Fargo station. Details of this project are covered in N. D. Exp. Sta. Bul. 324—"Winter Control of Cattle Lice—" dated, May, 1943.

Of interest here is a note in the Colorado station report, saying that lice control was effected in the college station herds by dusting the animals with a 10 per cent derris-sulfur dust.

Florida Experiment Station at Gainesville, pays tribute to the new insecticide, DDT, for control of corn earworm on sweet corn. Used both as a dust and a spray on the silks soon after they had developed, it was found that the dust gave better control—"as high as 95 per cent worm-free ears on some plots." Other station reports examined are silent on their studies, if any, of DDT.

To the development of plants with insecticidal properties which might prove valuable as new sources of rotenone, New York's two stations, the Florida station and South Dakota's station at Brookings each made contributions. At Ithaca, New York State botanists assembled forty-one species of legumes from northeastern United States localities and also selected ten other plants for trial, including some from Latin America and China. Special attention was given the yam bean at both Ithaca and Geneva in New York state and at Gainesville, Fla. Extracts were made from the bean at Ithaca but, although all samples were toxic, the Cayuga scientists say the compounds of unquestionable purity which they obtained, were not rotenone, "nor has any rotenone been found in the bean."

South Dakota's report deals with examination of the seed of *Amorpha fruticosa*, a plant whose known toxic principle was at first assumed to be rotenone. Three tentative conclusions were drawn: "(1) the material contains something toxic to insects and also poisonous to fish; (2) it appears that the toxic material is something other than rotenone; (3) plants grown under similar conditions differ in the amount of toxic material they carry. This indicates a genetic factor is involved and offers a possibility for selection and improvement."

In Washington state, where lead arsenate is extensively used for control of apple pests, the question of whether the residues are toxic to domestic animals feeding on the apples was put up to the station chemists. Distribution of lead and arsenic in organs and bones of pigs was determined analytically, leading to the discovery that "the greater part of the retained lead was in the bones of the animals." It was significantly pointed out, also, that "the quantity of lead and arsenic ingested by some of the pigs was much larger than the amounts likely to be present when sprayed apples are used as feed."

The Sitona weevil, an insect of European origin, recently established in fields of vetch, a leguminous fodder plant, presented still another problem new to the Washington state entomologists. Exploratory control investigations indicated that arsenicals and fluorines were satisfactory, but most desirable dilutions have not yet been determined. Stickers appeared to be an essential part of these dusts and it was also determined that use of sprays was not feasible.

Noted also in Washington state's report is the statement that Black Leaf 155, a commercial nicotine bentonite, was the most satisfactory substitute for rotenone tested for control of fireworms on cranberries. Cryolite held fireworms in check but had drawbacks, while other materials tested failed to give control. Also covered in the Washington report are measures for control of cherry fruit fly, cabbage seed pod weevil, narcissus bulb fly and other related problems.

In a project supported by the Koppers Co., the Delaware Experiment Station at Newark, Dela., tested approximately 400 organic chemicals and compounds as fungicides and bactericides. In another project abrasive studies were made of 107 diluents for insecticidal dusts and in a supplementary study of copper compounds plus the various diluent materials it was established that "there is a correlation between the pH of the dust mixture and the liberation of water soluble arsenic and copper." Many of the "so-called" inerts, says the report, "are in reality very reactive with some copper fungicides or with calcium arsenate and, to be used safely, many of them must be used in specific mixtures."

Under the Naval Stores Research Fellowship, supported by Hercules Powder Co., work was done at Newark (1) to further develop and standardize "Thanite" for use as a household spray; (2) investigate adult mosquito sprays; and (3) to study use of naval stores products as mosquito larvicides. "Experiments have shown," says the report, "that Thanite gives some promise when employed against mosquitoes, but does not compare in effectiveness with pyrethrum at comparable concentrations." Research on mosquito larvicides, it is also stated, "has not been promising."

POTATOES being highly important in the American diet, it is not surprising to find stations in the producing areas giving large attention to control of potato pests. Contributions to advancement of insecticidal and entomological knowledge in this direction are noted in the reports of ten stations, Colorado, Florida, Iowa, Maine, Nebraska, New York, North Dakota, North Carolina, Washington and Wyoming. In Maine problems investigated included—reduction of copper and lime content in Bordeaux mixture—different copper fungicides applied at various concentrations—non-copper containing spray fungicides—copper fungicides in combination with rotenone—and seed disinfection. Readers interested in details may refer to Bul. 420 of the Orono station.

For Red River valley potato growers North Dakota entomologists sought answer to the question "Which is better, spraying or dusting potatoes?" Copper dust and Bordeaux mixture were employed and the conclusion was that "there was very little difference in the yield data between the spray and the dust." Use of copper also increased yield from 17 to 20

(*Turn to Page* 135)

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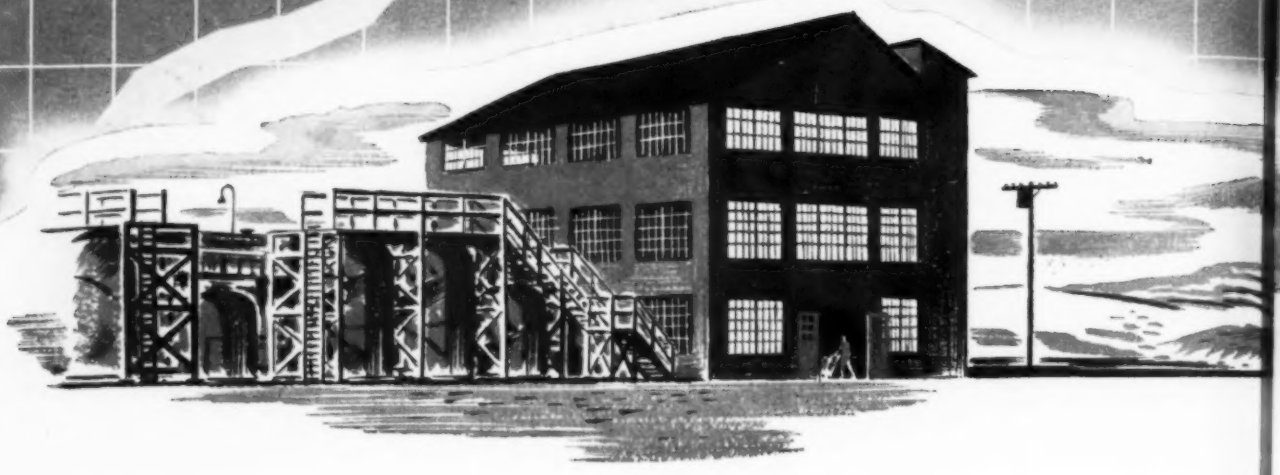

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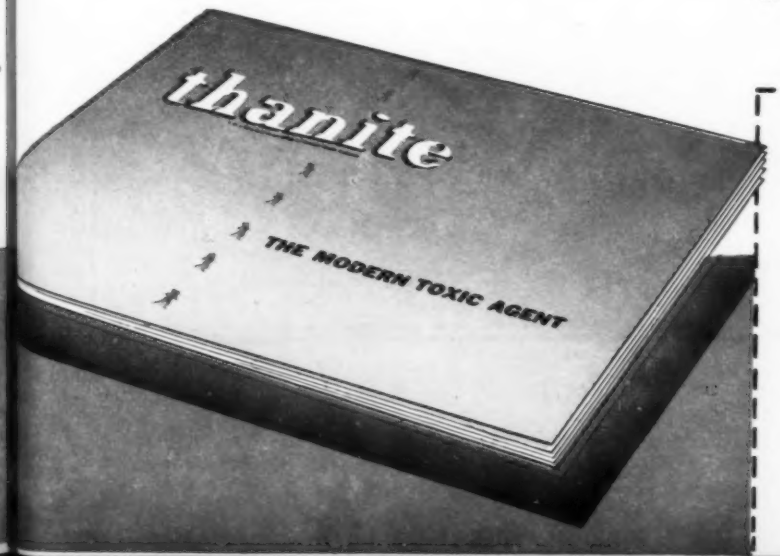

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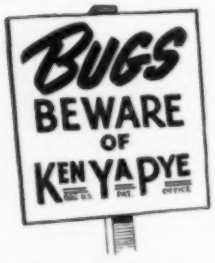

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per cent over plots not treated with copper.

Wyoming station, at Laramie, completed a 4-year study of potato psyllid control, results of which are reported in Bul. 260,—"Dusting for Potato Psyllid Control." This recommends dusting in preference to spraying and appraises various sulfur compounds for control of this serious pest of potatoes in the Rocky Mountain area.

Nebraska's research into sprays for potato insects included laboratory studies of the tenacity of sprays which showed that addition of wheat flour to a mixture of an insoluble copper sulfate in water increased the degree of retention "slightly." When lime was mixed with the flour before it was added to the spray mixture, the degree of retention increased markedly, in some cases the tenacity being doubled. This, says the report, compares favorably with common non-oil spreader-stickers.

One curious result is recorded from Nebraska's studies of potato insect control. Following use of zinc arsenite for flea beetle control evidence was found that the aphid population on plants increased, especially when two or more applications were made. "Much smaller increases, usually insignificant," says the report, "followed use of barium fluosilicate dust (Dutox). It seems likely that the control of various diseases transmitted by aphids may become more difficult as a result of zinc arsenate applied to control flea beetles." Barium fluosilicate dust was, however, found as effective as zinc arsenite against the flea beetles.

New York investigations of insects attacking potatoes on Long Island indicated that "nicotine has been equal to or better than rotenone sprays and dusts." Other details of the report are concerned with nicotine fumigation for aphids, a procedure which is coming into favor with some farmers. Combinations of rotenone and pyrethrum for control of flea beetle and leafhopper and their advantages over Bordeaux mixture were also investigated.

New York's Geneva station, in reporting on a project involving "the effectiveness of different fungicides as protectants for pea seed," pays tribute to a proprietary product, "Spergon" for its outstanding results. Four other new chemicals also proved to be highly effective as pea seed protectants, two of them, "Arasan" and "Fermategraphite" being "almost as effective as Spergon" in preventing seed decay and increasing yield. Both "may be needed to supplement Spergon before the war is over," the New York station predicts.

The Idaho station at Moscow, devoted attention to possible substitutes for rotenone in pea weevil control, while in Maine protection of pea fields from aphids was an important project. Conclusions reached are reported in Idaho's Bul. 251 and in Bul. 420 for Maine.

Washington state's contribution to the welfare of the pea canning industry was concerned with commercial warehouse fumigation for destruction of weevils in peas. Three chemicals, disc cyanide, liquid cyanide and methyl bromide, gave "unsatisfactory" or "imperfect" results but a fourth, chloropicrin, proved "satisfactory as a bin fumigant under nearly optimum conditions."

Coddling moth control measures were studied in various apple producing areas with emphasis on development of substitutes for the commonly used lead arsenate. Washington state station's report on use of cryolite is in this connection, significant. "A low grade cryolite (72 per cent) for the third successive year," says this report, "has resulted in as effective control of coddling moth as has the regular cryolite (90 per cent). Moreover this has been true at concentrations of 3 lbs. per 100 gallons of spray material, the standard recommendation generally employed for lead arsenate or regular cryolite." In event of a shortage of these latter two chemicals, the scientists assert, the low grade cryolite "would appear to be an acceptable substitute."

Incidentally cryolite is commended for control of various pests in a number of station reports. Maryland station found it giving practical control for ear worm larvae on string beans and lima beans. Mississippi station reports marked reduction of pickle worm damage on cantaloupe and squash by use of a cryolite-cuprocide-talc mixture containing 30 per cent cryolite. In North Carolina cryolite was also "the most satisfactory material used" against pickle worms. Similar references to this substance as practical and satisfactory likewise appear in other reports.

Use of dinitro dusts as substitutes for coal tar creosote in barriers against chinch bug invasions of corn fields received approval from midwestern station investigators. Experience in Illinois has been reported previously in this publication. Iowa's scientists say "The toxic dust barriers are more expensive and less resistant to damage by rain and wind than are good creosote-treated paper fence barriers, but they have the advantage of not requiring post holes and they kill all bugs that come in contact with them, thus assuring a reduction in the bug population as well as protection of adjoining crops."

Nebraska experiments brought similar results and the conclusion that "Dinitro dusts offer promise of becoming an effective substitute for creosote in chinch bug control. Farmers were assured, however, that use would be continued of nine permanent storage tanks for creosote, with a total capacity of 118,500 gallons, which were erected in 1942, with federal funds, for standby service in Nebraska's chinch bug areas.

IN eastern states that notorious old headline maker, the Japanese beetle, continued to command entomological attention. Near New Haven, Conn., the bug invaded fields of soybeans, and destroyed 25 to 50 per cent of the foliage. The experts attacked the pest with lime-aluminum sulfate sprays and lime dust, but, while the beetle retreated, it quickly organized a counter attack. Sprays of lead arsenate with safeners and oil injured foliage and a 1 per cent rotenone dust protected the soybeans about one week.

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New York's Ithaca station reports that Bordeaux mixture (4-4-50) with lead arsenate "continued to be the best beetle repellent." Bordeaux mixture alone was also satisfactory and favorable indications were derived by use of phenothiazine and bentonite, also with Fermate and bentonite.

Maryland's report says: "The cost of present trap baits for Japanese beetle can be reduced 40 to 50 per cent by diluting geraniol and eugenol with a mineral oil which has the same evaporating rate as the geraniol and eugenol mixture."

Florida's varied agricultural products, each with its particular insect pest, kept the Gainesville station researchers busy and much new data was accumulated of direct interest to insecticide manufacturers. For control of Florida flower thrips on chrysanthemums sodium antimonyl hydroacetate was tried out as a substitute for tartar emetic "with good results." It was "a safer material to be used in the bait than tartar emetic," says the report, "but further work is necessary before conclusions can be drawn."

Nicotine sulfate-oil spray "continued to be the most effective insecticide used for control of pecan nut casebearers." Garden flea hopper on celery was controlled effectively with "Pyrocide" dust and "Red Arrow" spray, after several other products had been tried. Of different fungicides tested for control of downy mildew on cabbage, "Spergon" and "Fermate" won approval as "most effective," while several other products were listed as "not satisfactory." For fruit worm control on tomatoes twenty materials were tested, of which seven were "definitely inferior," while the other thirteen "showed promise." Best worm control was obtained with a dry bait consisting of 86 lbs. corn meal and 14 lbs. "Kyrocide 65."

For bean leafhopper control dinitro dust in sulfur "was very promising as a substitute for the standard pyrethrum dust now used." For control of mole cricket, two commercial baits, (unnamed, but one of which was described as containing sodium fluosilicate,) were commended as having "proven quite effective in tests."

Citrus fruit pests, of course occupied large attention in the Florida research program and the report contains interesting data on use of dinitro compounds in both dust and spray form, against mites and scale insects.

Insects affecting the cotton plant were investigated by the New Mexico station but results are too detailed to summarize here. Arizona also reported on sulfur dusting trials to control cotton rust. Other stations in the cotton belt likewise made reports on progress with various continuing projects.

Kentucky's station at Frankfort reported development of an insecticide dust containing 10 per cent nicotine, extracted with solvent, dried, and finely ground. This was diluted to 2 per cent nicotine content by adding one part of hydrated lime and three parts of "Pyrax ABB" (pyrophylite) to one part of the 10 per cent dust. Tested with three species of plant lice, the 2 per cent dust gave 93.2 per cent to 100 per cent kill in twenty-four hours. In comparative tests, 0.5 per cent rotenone dust acted very slowly and gave much poorer results than the 2 per cent nicotine dust having lime in the formula, states the report.

Use of lead arsenate against beetle grubs in Kentucky blue grass sod gave an average control of 75.4 per cent with green June beetles, with a range up to 99.6 per cent control when a 2-lb. dosage was used. Results with the other species also varied in direct proportion to the increase in dosage.

The Iowa station began preliminary studies of toxicity of some dinitrophenols to the American dog tick and mapped field trials which were to employ a new approach, namely that of dusting vegetation in areas with heavy tick infestation. Four dinitro compounds were found promising as "tickicides."

South Dakota farmers bless the blister beetle because it feeds on grasshopper eggs, but because there are forty different species in the state, this same blister beetle can at times be a nuisance. So station entomologists have developed a number of formulas for sprays and dusts, listed others which are effective and reported on still others which gave unsatisfactory kills.

Pest control problems of peanuts were tackled by Georgia and North Carolina stations. This latter institution investigated possibilities for a combination treatment for weed and disease control in tobacco seed beds and made three recommendations: (1) a combination of cyanamid and chloropicrin; (2) cyanamid and ammonium thiocyanate combined; and (3) urea. North Carolina also approved sodium cyanide for controlling wooly apple aphid and diluted dinitro dusts for red spider mites on strawberries.

In appraising commercial insecticides the college scientists received full cooperation from manufacturers, even though, in many instances, the unbiased judgment of the investigators was unfavorable to some product. North Carolina lists the following industry cooperators: American Cyanamid Co., E. I. duPont de Nemours Co., Freeport Sulphur Co., Rohm & Haas Co., Tennessee Corp., U. S. Rubber Co., together with the American Potash Institute and the Crop Protection Institute.

Rhode Island mentions support of special studies by Innis, Speiden & Co., and Onyx Oil & Chemical Co. Penn State acknowledged aid from Reilly Tar & Chemical Co. and the Tennessee Corp. New York had help from Dow Chemical Co., Freeport Sulphur Co. and Stauffer Chemical Co.

Noteworthy, also, is New York's annual conference at Ithaca participated in by entomologists and manufacturers of insecticides and fungicides, to review recommendations for the coming year and ascertain the supply outlook for raw materials. When local shortages of insecticides required quick handling of critical situations, this teamwork between college and factory has also been productive of great benefits. The New York report tells, also, how the close contacts with the industry made it possible to obtain from government war agencies special permits to use certain restricted compounds for which there was no satisfactory substitute. ★★

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SAFETY IN INSECTICIDES

(*Continued from Page* 121)

fillers already have natural color, and this may dominate that of the finished product. The color in primary material at this point may cease to be protective or of value. I know of no poisoning from dry mixed agricultural economic poison dust that could have been prevented or lessened had it been artificially colored. Aside from the great cost, it is my belief that extension of compulsory protective coloring to include agricultural economic poisons dusts should be approached only after thorough study of the scientific and economic aspects.

Odors and taste have been considered as protective measures but they are seldom applicable or effective. It is my opinion that all types of warnings and protection should be evaluated in their simultaneous relationships.

Manufacturers can do much to protect the public against injury. Although we are most immediately concerned with injury to human beings, the hazards involved in use of agricultural chemicals extend into many other fields. For example, sticky chemical barriers, though not considered dangerously poisonous, have caused severe injury when applied directly to the bark of young or thin-barked trees such as citrus, avocado, almond, walnut, and fig trees. Lime-sulfur sprays applied to ornamental trees and shrubs adjacent to houses have caused serious damage by discoloration of white lead paint and required expensive redecoration. Lime-sulfur dips and shampoos for pet animals have caused extensive discoloration of painted and metal surfaces in homes. Valuable horses, cattle, and sheep occasionally die from eating grass under trees that have been sprayed with lead arsenate. Calves heavily treated with a petroleum oil fly spray on a hot day were severely injured, and two of them died. Grain treated with a protective fungicide was mistakenly fed to hogs, causing death. An olive grove was treated by open fumigation at night, and twelve hundred sheep in a nearby pasture were killed. A fumigant from a citrus grove drifted over adjoining property and killed a number of rabbits, dogs and ducks. Dogs have been successfully dusted to kill fleas, yet the same preparation used on cats has the possibility of poisoning them due to their habit of licking their fur. The same hazard applies to birds due to their habit of sleeping with heads under wings. Creosote is widely and effectively used as a wood preservative, but it has been unwittingly applied in dwellings where its odor was extremely offensive. Household sprays applied too freely have stained wall-paper and furnishings. A spray can stain merely by washing off dust. Sprays may not actually injure plants, but may reduce attractiveness of the fruit or foliage and cause a definite economic loss. For example, petroleum oil sprays blemish the bloom on plums or table grapes; and ordinary Bordeaux mixtures, used satisfactorily on commercial plantings, leave unsightly residues on ornamental shrubs and may reduce their sale in the nursery trade. Spray or dust treatments applied singly without injury may cause serious damage to plants when applied together or in close sequence. In so far as possible, any injury to plants, or other damage, should be predicted and the user forewarned.

Citizens should be supplied with all possible information with regard to care in handling and use of economic poisons, and no one should be encouraged to consider them safe. In connection with recommendations for use of pest control materials by victory gardeners and others, the industry can materially increase its usefulness to consumers and the public by developing an educational program, and stressing necessary precautions to assure optimum usage. The willing listener, and that's what one has in the victory gardener, can be educated.

The Bureau of Chemistry has done its full job by bringing labels into line with requirements of law, but beyond this Bureau's jurisdiction the existing organized effort seems inadequate. Letters to us frequently report restaurant operators using phosphorus paste and sodium fluoride indiscriminately around food preparation, and on tables and benches, and sometimes on shelves from which it drops onto food preparation surfaces. The Economic Poisons Article of the Agricultural Code does not give this Bureau jurisdiction over placement of economic poisons by pest control operators or other users.

Cooperation of health officers is essential. If organizations responsible for sanitary conditions in cafes, and those officials governing use of economic poisons do the same thorough and arduous job done by the Bureau of Chemistry with regard to labels, much will be accomplished with respect to safety education for the public. Education of editors and other leaders is essential. As for the average individual, the best approach might be through lessons on safety in the public schools by means of detailed information and discussion. Increased knowledge by fairminded persons always will make for safer storage and use of economic poisons generally.★★

Testing Contact Insecticides

Drosophila melanogaster was sprayed with nicotine sulfate solution by both intermittent and continuous methods, neither method seeming superior to the other. Increasing age of flies, number of flies per cage and the proportion of males as well as longer delays between filling of the cages and spraying, raised the observed mortalities. The type of cloth used to cover the cages must be standardized and softened cloth discarded. Flies aged 5 days were most susceptible. W. S. McLeod. Can. J. Research 22D, No. 4, 87-104 (1944).

Stability of Rotenone

Experiments with 3rd-stage nymphs of the tick *O. moubata* as test insect, showed that solutions of rotenone in xylene obtained from coal-tar distillation were fully as toxic one year after preparation as the freshly prepared solutions. G. G. Robinson. Bull. Entomol. Research 35, 1-2 (1944).

Control of the Red Spider

A commercial 4,6-dinitro-*ortho*-cyclohexyl phenol salt is recommended for controlling the common red spider, *Tetranychus telarius* in greenhouses. R. L. Parker. J. Econ. Entomol. 37, 292 (1944).

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PINE DISINFECTANT TESTING

DETERMINATION OF PINE OIL IN PINE OIL EMULSIONS

By W. A. Kirklin and P. J. McLaughlin

Hercules Powder Company

THE widespread use of pine oil-containing disinfectants or other so-called "soluble pine oils" consisting of pine oil and an emulsifying agent, such as fatty acid soap, vegetable oil soap, rosin soap or saponified sulfonated oil, makes desirable a method for determining the pine oil content of these materials. A satisfactory method must not only give quantitative values but must also permit separation and examination of the pine oil in order that the grade of pine oil used in the product can be determined. This paper is concerned with the development of a method that would satisfy these requirements.

Methods in use at present are modifications of the A.S.T.M. method[1] for volatile hydrocarbons in soaps and are based on removal of pine oil by steam distillation. Such procedures have been found to give reasonably satisfactory recoveries of the amounts of pine oil present when the steam distillation is continued until the volume of recovered pine oil is substantially constant. Disinfectants, such as the Hygienic Laboratory Formula, which contain saponified rosin require a considerably longer distillation time, probably because of pine oil retention by the rosin. However the distilled pine oil collected during such an analysis differs markedly from the original pine oil in some of its properties. This difficulty precludes the use of such methods where the quality of the pine oil used in the disinfectant is to be determined. The mineral acid usually added to prevent frothing and which remains in contact with the pine oil during the subsequent heating, effects some isomerization and dehydration of the tertiary terpene alcohols.

A summary of results obtained by using a modified apparatus and by distillation in the presence of the added acid is given in Table 1. Two types of disinfectant, one the Hygienic Laboratory Formula and the other containing sodium oleate, were used; these disinfectants were prepared using the following formulas:

Hygienic Laboratory Disinfectant

	Per cent
Yarmor* 302 Pine Oil**	61.9
I Wood Rosin	24.7
Oleic Acid	2.0
NaOH	3.1
Water	8.3

Sodium Oleate Disinfectant

	Per cent
Yarmor* 302 Pine Oil**	80
Sodium Oleate	10
Water	10

The samples were diluted, acidified, and immediately distilled; the results appear in Table 1. It will be observed that the pine oil obtained was changed in its physical properties; the considerable reduction in total alcohol content was, no doubt, the result of dehydration, by the acid added, of alpha-terpineol or of other tertiary alcohols present. Secondary alcohols of the type of borneol would probably remain unchanged.

[1] A.S.T.M. Standards on Soap and Other Detergents; Chemical Analysis of Soaps (D460-42).

* Reg. U. S. Patent Office.

**Typical analysis of Yarmor 302 pine oil:

Specific Gravity at $\frac{15.5}{15.5°C.}$ = 0.941

Refractive Index n_D^{20} = 1.4825

Color—Lovibond 500 Amber Series 6.0
+200 Red Series 0.25

Total Alcohols 82%

Unpolymerized Residue 2.5%

A.S.T.M. Distillation Range 5% 210.0°C.
95% 225°C.

TABLE 1

Determination of Pine Oil in Disinfectant Formulas: Distillation in Presence of Mineral Acid

Sample No.	Type of Emulsifier	Sample Weight (g.)	Distillate Volume (ml.)	Weight (Vol. x 0.945) (g.)	% Pine Oil Present	% Pine Oil Found	% Recovery
1	Rosin Soap	31.7	19.6	18.5	61.9	58.4	94.3
2	Rosin Soap	28.1	18.5	17.5	61.9	62.3	100.6
3	Sodium Oleate	31.2	27.1	25.6	80.0	82.1	102.6
4	Sodium Oleate	32.1	27.3	25.8	80.0	80.4	100.5

Properties of Combined Distillates from Analyses Above

	Original Pine Oil	Recovered Pine Oil
Refractive Index n_D^{20}	1.4822	1.4799
Specific Gravity at $\frac{15.5}{15.5°C.}$	0.938	0.937
Total Alcohol	82%	55%

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TABLE 2

Determination of Pine Oil Content of Hygienic Laboratory Formula Pine Oil Disinfectant: Ether Extraction of Acidified Soap Before Distillation

Sample No.	Sample Weight (g.)	Distillate Volume (ml.)	Distillate Weight (Vol. x 0.945) (g.)	Distillate % Pine Oil Present	Distillate % Pine Oil Found	% Recovery
7	56.2	35.7	33.7	61.9	60.0	96.9
8	51.1	31.8	30.1	61.9	58.8	95.0
9	50.6	31.4	29.7	61.9	58.6	94.7
10	52.2	34.4	32.5	61.9	62.3	100.6
11	49.9	32.7	30.9	61.9	61.9	100.0
12	50.0	31.0	29.3	61.9	58.6	94.7
13*	101.9	63.8	60.3	61.9	59.2	95.6
					Average	96.8

Properties of Combined Distillates from Analyses Above

	Original Pine Oil	Recovered Pine Oil
Refractive Index n_D^{20}	1.4830	1.4830
Specific Gravity at $\frac{15.5}{15.5°C.}$	0.947	0.947
Total Alcohol	81%	83%
Unpolymerized Residue	1.2	1.2
A.S.T.M. Distillation Range		
First Drop	202.7°C.	200.7°C.
5% Distilled	210.2	209.7
10	211.7	211.7
20	213.7	213.2
40	215.2	214.7
60	216.2	215.7
80	217.7	217.7
90	218.7	218.7

TABLE 3

Determination of Pine Oil Content of Pine Oil Disinfectant Containing Sodium Oleate: Ether Extraction of Acidified Soap Before Distillation

Sample No.	Sample Weight (g.)	Distillate Volume (ml.)	Distillate Weight (Vol. x 0.945) (g.)	Distillate % Pine Oil Present	Distillate % Pine Oil Found	% Recovery
15	26.7	22.2	21.0	80.0	78.7	98.4
16	27.6	23.4	22.1	80.0	80.1	100.1
17	32.0	27.0	25.5	80.0	79.7	99.6
18	32.3	27.2	25.7	80.0	79.6	99.5
19	32.1	27.2	25.7	80.0	80.1	100.1
20	31.0	26.2	24.8	80.0	79.9	99.9
21†	125.0	105.9	100.1	80.0	80.1	100.1
22†	125.0	103.5	97.8	80.0	78.2	97.8
					Average	99.4

Properties of Combined Distillates from Analyses Above

	Original Pine Oil	Recovered Pine Oil
Refractive Index n_D^{20}	1.4830	1.4830
Specific Gravity at $\frac{15.5}{15.5°C.}$	0.948	0.948
Total Alcohol	82%	84%
Unpolymerized Residue	1.2	1.2
A.S.T.M. Distillation Range		
First Drop	203.0°C.	204.0°C.
5 % Distilled	210.0	
10	212.0	210.0
20	214.0	211.0
40	216.0	216.0
60	218.0	217.0
80	220.0	219.0
90	221.0	220.0

IT has been found possible to obtain distillates substantially unchanged from the original pine oil used in the soaps by ethyl ether extraction of the acidified soap before steam distillation. The procedure involves, therefore, this additional ether extraction step. The pine oil is thus removed from mineral acids which could cause decomposition during the subsequent distillation which is necessary in order to separate the pine oil from the fatty acid or rosin.

The results, given in Tables 2 and 3, showed that the distillates obtained by the proposed method were almost identical in physical properties with those of the pine oil used in preparing the disinfectants. It will be noted that recoveries of pine oil from disinfectants containing rosin soap were perceptibly lower and less reproducible than in those containing oleic acid soap; this is the usual case and is no doubt caused by retention of pine oil by rosin.

Most of the data given in Tables 2 and 3 were obtained by use of a modified distillation apparatus employing the well-known crankcase oil dilution tube (see A.S.T.M. Method D322). The application of this apparatus to determination of pine oil in pine oil emulsions is believed to be new. In conventional steam distillation, the rate of distillation is limited by the narrow inlet and outlet through which steam and vapors must pass, so that final constancy of distillate volume is attained slowly, especially if the solutions being distilled contain rosin soaps. In the new apparatus, illustrated in Figure 1, the steam is generated *in situ* from water added with the soap sample and allowed to pass vertically through the large (15 mm.) tube at a rapid rate. The need for a separate generator and inlet assembly is thus removed. A constant volume of collected pine oil should be observed in about two hours instead of in the six hours necessary with the standard apparatus.

* Conventional steam distillation: 6 hours required. All other results were obtained with the modified apparatus, which required 2 hours' distillation.

† Conventional steam distillation, 4½ hours required. All other results were obtained with the modified apparatus, which required 2 hours' distillation.

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In most laboratories, the analysis of pine oil emulsions is confined to determination of per cent pine oil; for this purpose, the crankcase oil dilution tube is recommended. However, it is sometimes also desired to isolate sufficient pine oil from the emulsion for examination of its properties (distillation range, unpolymerized residue, etc.). When these determinations are required, the conventional steam distillation apparatus, which permits distillation of larger samples of emulsion may be substituted with the rest of the procedure unaltered. The analyses of Sample 13, Table 2, and of Samples 21 and 22, Table 3 employed the conventional apparatus; as indicated in the footnotes, longer distillation periods were necessary.

Procedure

If the physical constants of the oil, e.g., distillation range, density, total alcohols, etc., are to be determined, choose a sample of the pine oil disinfectant of such size that the total recoverable pine oil will be from 100 to 110 ml. For example, a pine oil disinfectant containing 80 per cent pine oil would require a sample of between 125 and 135 ml. If only the per cent of pine oil present is to be determined, a smaller sample giving about 30 to 40 ml. of pine oil will be satisfactory.

Weigh a suitable sample in a beaker and transfer to a 500-ml. separatory funnel with the aid of 100 ml. of distilled water. Add 1:1 HCl until the mixture is neutral to litmus, then about 5 ml. additional. A larger excess should be avoided.

Add 100 ml. of ethyl ether, shake well, and draw off the aqueous layer into a second 500-ml. separatory funnel. Add 50 ml. of ethyl ether to the aqueous layer, again shake, and draw off the aqueous layer. Repeat the extraction of the aqueous layer with a second 50-ml. portion of ether.

Combine the ether extracts and wash with 100-ml. portions of water until the washings are neutral to litmus.

Transfer the ether solution to a 500-ml. or 1-liter, round-bottom, ring-neck flask and cautiously evaporate the ether on a steam bath.

Add a few carborundum particles (10 mesh), connect to a steam distillation assembly with a suitable measuring trap, and steam distill until the volume of collected oil becomes practically constant. After cooling, the volume is read.

A convenient measuring trap (the crankcase oil dilution tube), which has been found suitable for this determination, is illustrated in Figure 1. It has the advantage of recycling the water, thereby reducing to a minimum errors due to solubility and loss of pine oil in the condensed water. As illustrated, the trap is of small capacity and necessitates several determinations on weighed portions of the total weighed extract to accumulate sufficient pine oil for measurement for all its constants, especially A.S.T.M. distillation tests. For laboratories having many such determinations to be made on a given sample, use of a similar trap of larger capacity is desirable.

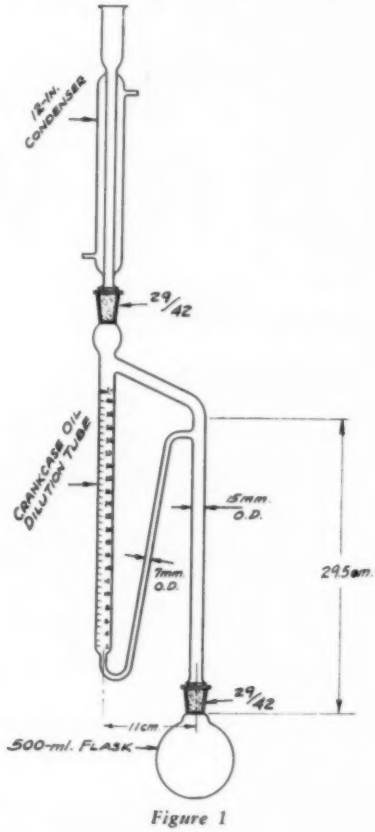

Figure 1

The volume of the collected pine oil multiplied by 0.945 (the average density) gives the weight of pine oil present. This volume is then calculated to percentage. This method will give satisfactory results for most practical purposes. If desired, corrections for incomplete recovery of pine oil may be determined by analyses of disinfectants of known compositions similar to those under examination.

Prior to determination of the physical constants, the pine oil should be dried overnight over anhydrous sodium sulfate.

Acknowledgment

The authors wish to acknowledge the assistance of Miss Lilyanne W. Babskie who made many of the analyses.

Moth-proofing Agents

Insecticides for killing moths or moth worms which may contain 95-98 per cent of hexachloro ethane are increased in effectiveness by the addition of a small proportion such as 2-5 per cent, of *para*-chloro bromo benzene, chloro naphthalene or *para*-dichlorobenzene. H. von Philipp, to the Alien Property Custodian. U. S. Patent No. 2,350,814.

Control of Brown Dog Tick

A dust prepared from a commercial mixture of butyl carbitol thiocyanate and *beta*-thiocyanoethyl esters of higher fatty acids 5 grams, magnesium carbonate 2 grams, and a commercial dust diluent 100 grams, controlled the brown dog tick, *Rhipicephalus sanguineus*, on dogs. G. H. Plumb. J. Econ. Entomol 37, 292-3 (1944).

Adopt Fumigant Standards

Members of the National Pest Control Association adopted new standards at their recent 12th annual meeting in Chicago to cover the use of calcium cyanide in structures as an exterminating procedure in rodent control. The new standards are as follows:

I. Definitions:

(a) Calcium Cyanide Defined:—The term Calcium Cyanide (cyanogas A Dust) as used herein shall mean a fumigant manufactured by the American Cyanamid & Chemical Corporation which upon contact with moisture in air liberates Hydrocyanic Acid Gas in the proportion of 25 per cent of its weight.

(b) Spot or Restricted Treatment Defined:—The term spot or restricted treatment as used herein shall mean and include the application of Calcium Cyanide (cyanogas A Dust) in small holes, or harborages or enclosed runways which are natural hiding or nesting places for rodents.

II. Calcium Cyanide (Cyanogas A Dust) is approved for use in sublethal dosages as an extermination procedure for rodents in structures under the following conditions:

(a) It shall be applied by rubber band bellows of the type manufactured by Central Rubber Products Company, Thomas W. Houchin Corporation, or Getz, Incorporated.

(b) It shall only be applied for spot or restricted treatment for rodent control.

(c) It shall only be used by experienced pest control operators and with suitable gas mask available.

III. If calcium cyanide (cyanogas A Dust) is used as a fog or cloud for the control of rodents or insects or in lethal dosages in structures as in space fumigation, all the regulations pertaining to the use of fumigants shall apply.

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etc.

more about DDT

PENDING completion of agricultural research projects now under way, Federal entomologists do not recommend DDT, the war-developed insecticide, for commercial agricultural use, the War Production Board's DDT Producers and the Arsenical Producers Industry Advisory Committees were told at a recent joint meeting in Washington. WPB officials told the committees that production of DDT is limited because of expanded military programs calling for chlorine and benzene, raw materials required in the manufacture of DDT. Increased military requirements for DDT also make the chemical less available for any civilian needs. However, WPB officials expect that all military requests will continue to be satisfied, and that limited supplies will be available for agricultural experimentation.

P. H. Goggins, chief of the Chemicals and Fertilizers Branch of the War Food Administration, reported that substantial quantities of DDT will be needed to continue experimental and developmental work. "Such uses must be approved by State, Federal or other research agencies, and it is expected that such designated authorities will assume responsibility to see that the material is properly used and the results observed and reported," he said. "As uses of DDT are approved and recommended for control of different insects, the Chemicals and Fertilizers Branch, War Food Administration, will prepare a program for the distribution of the available supplies and present it to the War Production Board for implementation.

Committee members agreed with Government officials that DDT should not currently be made available for commercial use. They suggested that as much material as possible be allocated for further experimentation on agricultural crops, dip sprays for livestock and household insecticides. They also agreed that sufficient quantities be made available for experimentation on the codling moth, (the worm of apples), but that none be provided for commercial use on this pest.

Although DDT is used by the armed forces for mosquito control in combat areas, a similar use in malarial sections of the United States by civilians is not yet practical, Government officials pointed out. Small quantities are now granted to the Public Health Service, of the Federal Security Agency, for hospitals in this country containing malaria-suffering veterans or prisoners of war to prevent a spread of the disease here.

Sievert A. Rohwer, assistant chief of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, reported that the DDT insecticides were being tested at field laboratories of the bureau throughout the United States; that these tests were conducted on many kinds of insects attacking a wide variety of crops and various kinds of animals. The season's results now available for the most part confirm preliminary indications of last year that it is toxic in usable dosages to a larger number of insects than any material yet tested as an insecticide. It has properties that classify it in a unique category, one of which is the long period over which it remains toxic. Like other organic materials, it is selective and there are quite a few important insect pests against which it is apparently not toxic.

Mr. Rohwer emphasized that the persistence of its toxicity and the fact that it killed so many kinds of parasitic insects that prey on injurious species made it necessary to have adequate information on the effect its use may have on the biological complex before it is applied over wide areas. He pointed out that tests this season had disclosed that its toxicity is lost under some conditions and more facts must be assembled on how insecticides containing DDT should be formulated. He also stressed that information on how insecticides containing DDT would fit into schedules used to combat other pests, including diseases, was meager and that facts of this nature were essential before it could be recommended for general use against most insect pests.

All this, he agreed, emphasized that there was need for much more research before insecticides containing DDT could be recommended for grower use and made commercially available in a form in which they could be generally used. Experimentation with DDT had to be carried out on a larger scale than in the case of many other insecticides because of the necessity of appraising the effect its use may have on other forms of life, including beneficial insects. In view of the fact that other insecticides of proved usefulness, such as arsenicals, rotenone, nicotine and thiocyanates, were available for essential agricultural needs, and considering that supplies of DDT are needed for essential proved uses in the military and public health field there was no justification for recommending a new material for any purpose for which it had not been thoroughly tried and proved to be effective and safe, Mr. Rohwer said.

Mr. Rohwer cited the results of experiments that had been conducted on many different insect pests such as the plant bugs attacking sugar beets, alfalfa, potatoes and the codling moth. He said that entomologists at five laboratories of the Bureau and those at some state stations had tested DDT insecticides on the codling moth. The Bureau laboratories are located in Washington, Indiana, West Virginia, Maryland and New York. He stated that with the exception of part of the experimentation in Indiana, where tests were made on a block of a few acres, all tests were on a few trees.

At all locations the experiments indicated that DDT insecticides give good protection from codling moth, but that it also killed beneficial insects and that injurious species of mites and some aphids increased. The experimenters also observed that trees treated with DDT dropped foliage and fruit prematurely and that there were instances where the fruit was smaller. Further experimentation is needed to determine whether these effects on the trees are caused by the chemical or by the increased populations of mites and aphids caused by its use.

Answers to these problems and determination of spray schedules can only be secured by further experimentation, Mr. Rohwer said. Even if it were determined that the residue on the harvested fruit presented no health hazard, the use of DDT insecticides for codling moth control cannot be recommended on the information now available.

An Office of Civilian Requirements representative told the committee that industry was conducting intensive research on DDT for a wide variety of potential post-war applications such as fly sprays; in moth treating and proofing for dry cleaning and tailoring establishments; in paints as a natural repellent for insect infestations; and for the protection of pets.

Requests for DDT to be used for experimentation and development work should be submitted to WPB in triplicate on Form WPB-2945, the committee was told. A letter, in triplicate, should accompany each request containing the following information:

(1) Name of the proposed supplier;
(2) Total amount of material required;
(3) Time when the material is needed;
(4) Form in which the material is to be delivered (as 10 per cent dust, 20 per cent liquid concentrate, technically pure grade, etc.);
(5) Pests against which the material will be tested; and
(6) Nature of the experiments and where they will be conducted.

DDT TOXICITY STUDIES

A NUMBER of interesting new facts concerning the toxicity of DDT were brought out in two interesting papers read at a meeting of the Entomological Society of Washington, D. C., early last month. The speakers were Dr. Herbert O. Calvery, Chief of the Division of Pharmacology, U. S. Food and Drug Administration, who spoke on "Toxicity of DDT by Oral,

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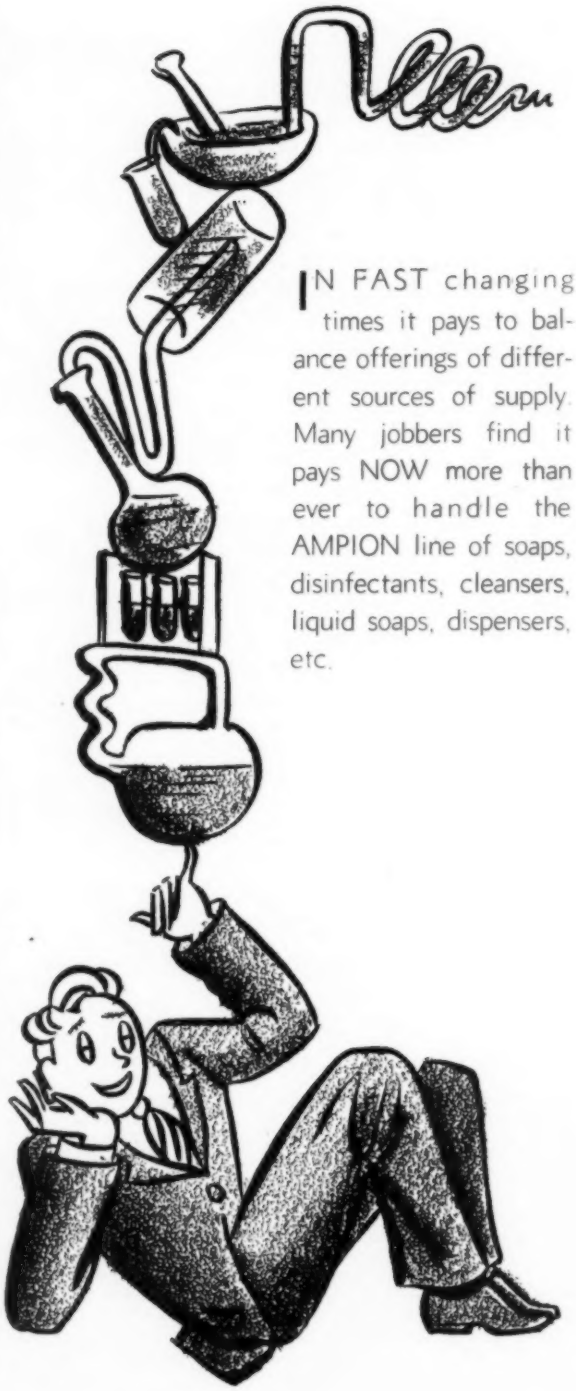

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Parenteral and Cutaneous Administration," and Dr. Paul A. Neal, Chief of Industrial Hygiene Research Laboratory, National Institute of Health, who spoke on "Toxicity of DDT By Inhalation."

The Federal Security Agency has issued the following press releases, abstracting these two significant addresses.

Dr. Herbert O. Calvery

Dr. Herbert O. Calvery, Chief of the Division of Pharmacology, Food and Drug Administration, U. S. Federal Security Agency, speaking at a meeting of the Entomological Society of Washington on November 2, reported on the toxicity of DDT following oral and parenteral administration and skin application. This presentation consisted of a brief resume of the toxicological studies of DDT carried out in the laboratories of the Division of Pharmacology, Food and Drug Administration.

Acute and subacute studies were made by application to the skin, as well as feeding to several species of animals. Chronic feeding experiments, that is, feeding experiments of long duration, were carried out on three species. Other studies that were made include skin irritation and sensitization, pharmacological investigations as to the site and mode of action, and change in blood morphology.

In solid form DDT applied topically to the skin of these animals is nonirritating, nonsensitizing and not appreciably absorbed. In solution, either in oil or in organic solvent, it does readily penetrate the skin, is very mildly irritating and a very mild sensitizing agent.

In single and multiple dose administration (acute and subacute) there are wide individual as well as wide species variations.

In the prolonged feeding experiments (chronic toxicity) rats have been fed for about 18 months diets containing 100, 200, 400 and 800 p.p.m. Other species have been studied for shorter periods.

The pharmacological manifestations of effect from DDT are principally loss of appeetite, mild to severe tremors of central nervous origin, convulsions and death. Tremors can be prevented or abolished by general anesthetics and narcotics.

Histopathologic examination of tissues of animals which have received DDT shows tissue damage but it is neither striking nor characteristic for all species.

"More experimentation is needed before we will have clear and full understanding of DDT and the various formulations in which it may be used for insecticidal purposes," Dr. Calvery stated.

Dr. Paul A. Neal

Dr. Paul A. Neal, chief of the research section of the Division of Industrial Hygiene of the Public Health Service, Federal Security Agency, speaking at a meeting of the National Museum Entomological Society of Washington on November 2, reported that in spite of its inherent toxicity, DDT in the desired insecticidal concentrations in air is of such low order that it will not cause injurious effects in humans. The meeting was held at the National Museum.

Studies conducted at the Industrial Hygiene Research Laboratory of the National Institute of Health in Bethesda, Md. showed that DDT in concentrations up to 10 per cent in inert powders, for dusting clothes, as in the extermination of lice, offers no serious health consequences, he said. The use of a one per cent DDT "Deobase" mist mixture had no toxic effect on rabbits, and it should be safe to use as a fly spray, he added. In a clinical and laboratory study of three men who had several months of continuous occupational exposure to DDT in its various forms as an insecticide, an evaluation of results failed to indicate any definite toxic effects from exposure to DDT, Dr. Neal explained.

The monthly column of Preston Peaker, our perambulating Washington correspondent and elusive keyhole listener, is missing from its usual spot this month. Peaker claims to be on vacation, but it is an even better bet that he picked up a doorknob in his eye in the course of his rounds and can't see to typewrite. He will be back next month, we are assured, with another hot crop of inside Washington information on important developments affecting the insecticide and disinfectant manufacturer.

Dr. Neal disclosed that inhalation studies of the toxicity and potential dangers of aerosols, dusting powders and mists containing DDT had been made at the Industrial Hygiene Laboratory on mice, rats, guinea pigs, dogs, monkeys and human beings. These experiments revealed a marked difference in the susceptibility of different animal species to DDT. Mice were more susceptible than rats; guinea pigs and rabbits, with monkeys and dogs, most resistant. Only when relatively large doses were ingested or absorbed through the skin did toxic reactions set in, such as tremors, "jumpiness" as in strychnine poisoning, convulsions with death, fatty degeneration of the liver and kidneys or changes in the nerve structure, the speaker said.

In experiments with dogs, daily insufflation of 100 milligrams of pure DDT per kilogram of the weight of the animal caused definite signs of poisoning in only one out of the three animals tested, after a period of 18 days, he said.

Although this study deals only with the appraisal of the potential dangers of DDT when inhaled as an aerosol, dust, or mist, Dr. Neal pointed out that massive doses either by mouth or by skin absorption will cause toxic reactions. Heavy contamination of foods should be avoided. Dr. Neal concluded that despite the inherent toxicity, the use of DDT in one to five per cent solutions in 10 per cent cyclohexanone with 85 to 95 per cent "Freon," as aerosol, should offer no serious health hazards when used as an insecticide.

—— ♦ ——

Geigy Warns on DDT Use

Geigy Company, New York dyestuff house, which introduced DDT insecticidal compositions to the Government, has issued a statement calling attention to the fact that the raw material, DDT, is not in itself a complete insecticide but is a toxicant, which to be effective requires very careful compounding with other compatible substances that act as diluents or carriers. The company said:

"Many research workers of experience have been experimenting with DDT, the raw material, and have found it ineffective, concluding that DDT does not have the properties popularly credited to it.

"Because it is an easily spoken and written designation, DDT is popularly used to denote the whole range of formulae in which it is involved. It is, however, merely an ingredient. It is part of the whole, not the whole by itself. Thus 'Gesarol' (used in agriculture) and 'Neocid' (highly effective against typhus lice and now combatting malarial mosquitoes and other insects affecting man and animals), are compositions containing only 3 to 10 per cent of DDT. It is a mistake to expect from DDT, itself and alone, results that can only be obtained by the careful compounding of this chemical with compatible vehicles."

—— ♦ ——

DDT Effectiveness

A 5 per cent solution of DDT in kerosene gave 100 per cent mortality against bedbugs for 64 days. At least 100 mg. per square foot of sprayed surface should be deposited.

An emulsion containing 5 per cent DDT, 6.25 per cent benzene, 1.25 per cent of organic emulsifier and 87.5 per cent of water, applied as a wash, controlled ticks (brown and lone star) on dogs. Incorporated in a nondrying adhesive material, DDT applied to the inside of the ears of cattle, gave excellent control of the Gulf Coast Tick and promising results against the spinose ear tick.

(*Turn to Page* 159)

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TRADE NEWS . . .

Kerwith West Canadian Mgr.

Mr. A. W. Kerwith, formerly district manager of the West Disinfecting Company's Seattle, Portland and Western Canadian districts, has just been appointed managing director of the entire Canadian market for the West Disinfecting Company. The West Company maintains offices in Calgary, Alta., Halifax, N. S., Montreal, Que., Regina, Sask., Toronto, Ont., Vancouver, B. C., and Winnipeg, Man.

Southern PCOs Confer

The fifth annual Southern Pest Control Operators Conference was held at Louisiana State University, Baton Rouge, La., December 4, 5 and 6.

Rodent Control Preparations

Elkay Products Co., New York, have recently issued two new folders describing their line of products for rodent control. These include rat glue boards, rat glue, rat paste and mouse seed. Another new piece of sales literature describes the "Wizo" line of products for moth control, including moth cakes and crystals in various types of packages.

Oppenheimer Heads War Loan Div.

Exterminators and janitors' supply firms have been assigned a quota of $168,000 in the Sixth War Loan Drive, it was announced recently by General John J. Mangan, chairman of the Commercial Section of the Commerce and Industry division, War Finance Committee for New York. Henry Oppenheimer, president, Disinfecting & Exterminating Corp., New York, is chairman of the exterminators and janitors' supply firms division.

Marshall Joins Onyx Oil

Charles G. Marshall has joined the staff of the Onyx Oil & Chemical Company, Jersey City, N. J., as director in charge of the industrial division. For the past five years Mr. Marshall's efforts have been directed toward the technical and sales development of quaternary ammonium compounds in the field of public health. In his new

CHARLES G. MARSHALL

position he has assumed the development of cationic germicidal disinfectants and other associated chemicals. Mr. Marshall was formerly associate director of the industrial division of Winthrop Chemical Company.

Fred Rauch Recovering

Fred Rauch, special representative of S. B. Penick & Co., New York, spent several weeks at his home in Rockville Center, L. I., last month, but was reported recovering from his illness and expecting to return to active duty later in the month. Mr. Rauch, who has been a regular attendant at meetings of the National Association of Insecticide & Disinfectant Manufacturers, hoped to recover sufficiently to enable him to attend the annual meeting in New York early in December.

Germicidal Floor Finish

Continental Car-Na-Var Corp., Brazil, Ind., has issued an illustrated descriptive bulletin about "Steri-Lac" germicidal floor finish, described as a lacquer made of wax with germicide added in such a way as not to impair durability or appearance of the treatment. Disease causing germs will be killed within five minutes after application, it is claimed, but the maker states that subsequent applications are essential to immunize the floor.

New Dow Weed Killer

A new weed killer, dichlorophenoxyacetic acid, is now in commercial production by Dow Chemical Co., Midland, Mich., it was stated recently by Samuel Crowther 3rd, at the National Chemical Exposition in Chicago. The new weed killer can be sprayed from airplanes over large acreages or used in conventional spraying equipment for small farms, home gardens and lawns, according to Mr. Crowther.

Advice on Wax Sales

An elementary article on wax polishes, their composition, use and sale, appears in the September, 1944, issue of *Paper Sales*, Chicago trade paper which circulates among paper jobbers. The article gives the wax salesman some of the background which he should have on the production and use of waxes, and suggests a number of arguments which may be used to promote the sale of waxes.

Report on Dairy Cleanser Tests

Dairy scientists at Vermont Agricultural Experiment Station, Burlington, Vt., investigated several non-chlorine products in the laboratory to determine their suitability for bacteriological cleansing of dairy utensils. Bul. B 511—"Non-Chlorine Materials for Germicidal Treatment of Dairy Utensils"—discusses results and appraises the different products tested, including "Mikro - San," "Roccal," "Dowicide A," "Oakite 43-B-2," and "Rub-R-Kleen." "Brief trials under practical conditions in the University barns," says the report, "showed the first four to be essentially as effective as the germicide customarily used."

R. L. Wilson Rejoins Dow

Robert L. Wilson, chief boatswains mate, U. S. Navy, recently received his honorable discharge after serving two years and four months. Mr. Wilson has rejoined the New York office of Dow Chemical Co.

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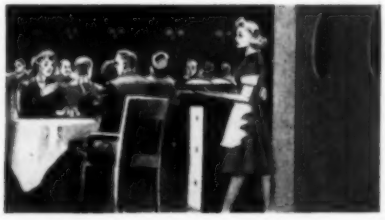

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Mich. Chem. Increases DDT Output

Facilities of Michigan Chemical Corporation, St. Louis, Mich., for the production of DDT, new insecticide material, have been expanded to increase production substantially, according to an announcement by John L. Giles, vice president and general manager of the firm. Based on its remarkable record in the control of malaria mosquitoes, flies, lice, etc., Michigan Chemical Corp. anticipates a brisk postwar demand for DDT. "DDT will usher in a new era of insect control, and ranks with the greatest discoveries of medicine," Mr. Giles declared.

Michigan Chemical Corp. is also a producer of methyl bromide, now being widely used by the armed forces as a fumigant. Among other MCC products used extensively in peacetime and now contributing to war production are magnesium oxides. Production of calcined magnesite and calcined magnesia has been increased to meet increased needs of the synthetic rubber industry.

Employs Female Exterminator

Joseph Schatzberg of Aborn Exterminating Co., Newark, N. J., received considerable publicity in the November 6th issue of the *Newark Evening News* in connection with a new member of their staff, Mrs. Erna Uebelhoer, believed to be perhaps the first woman pest control operator in the State of New Jersey. Mrs. Uebelhoer answered a reecnt advertisement of the company for a PCO (male), was employed, and has been filling the job satisfactorily for the past two months.

Folders on Pyrethrum, Rotenone

Two new releases dealing with pyrethrum and rotenone have just been issued by the Chemical Unit of the Bureau of Foreign & Domestic Commerce. Prepared under the direction of L. N. Markwood and Laura G. Arrington, they summarize and bring up to date all the available statistical information such as production, imports and exports of these two important insecticide raw materials. Copies are available through the Bureau.

T. E. McElroy Dies in Wilmette

Thomas E. McElroy, 57, vice-president of William Cooper & Nephews, insecticide manufacturers, Chicago, died last month at his home in Wilmette, Ill. He is survived by his widow, Margaret, and two daughters, Mrs. Marie Kraft and Miss Patricia McElroy.

Lester Dittus Dies

Lester Dittus, who operated the Exterminite Co., Chicago, died of a heart attack while attending the recent 12th annual meeting of the National Pest Control Association in Chicago. Mr. Dittus is survived by his widow and a son, Seaman 1/C Lee Dittus.

Advice on Floor Care

The tremendous Parkchester apartment city operated in the Bronx, New York, by Metropolitan Life Insurance Co. has recently given its tenants some advice on the care of their apartment floors. On the wooden floors which are originally finished with a tung oil penetrating sealer, they recommend only paste or liquid spirits waxes. Tenants are cautioned not to use water, water-emulsion waxes or no-rubbing waxes on the wood floors, although such waxes are recommended for use on linoleum in the kitchens. The following instructions are given on floor care:

1. Make a pad of No. 2 steel wool slightly larger than the palm of your hand.
2. Using a rotary motion, apply liquid spirits wax to the floor with the pad. (Do not do more than a small area at a time.)
3. Wipe off excess wax with a dry cloth, leaving only a slight film of wax on the floor.
4. Allow to dry for about 20 minutes.
5. Buff the floor with a dry cloth.
6. If a high sheen is desired, apply a final thin coat of paste wax, allow it to dry for 10 minutes, and buff as before.

Used Machinery Folder

First Machinery Corp., New York, has recently issued a new edition of its house organ *First Facts*, telling something of the role which used machinery has played in keeping war production at a high level, and listing representative types of used machines which the company has in stock.

Lighter side of the recent PCO Chicago convention was pictured by Charles Opitz of John Opitz, Inc., Brooklyn, perennial convention photographer. Left—Bill Buettner and Prof. J. J. Davis admire suit of armor jokingly presented to the latter. Center—Dr. Alfred Weed of John Powell & Co., Mel Goldberg of WPB and Miss Helena Whalen of R. J. Prentiss Co. Right—Bill Buettner displays the "Buettner" issue of LIFE, concocted by Charles Opitz.

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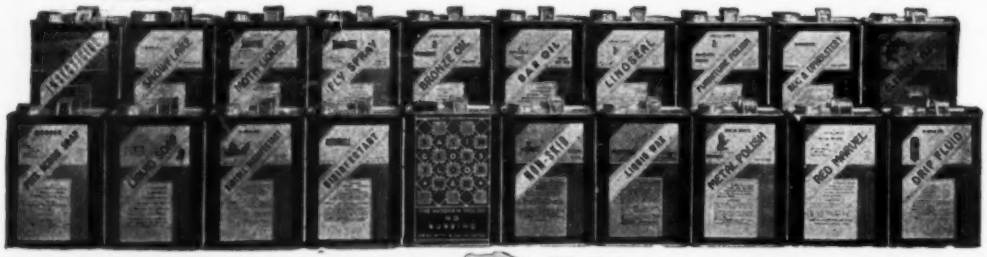

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Pine Deodorant

FLY SPRAYS
MOTH SPRAYS
INSECTICIDES
LIQUID SOAPS
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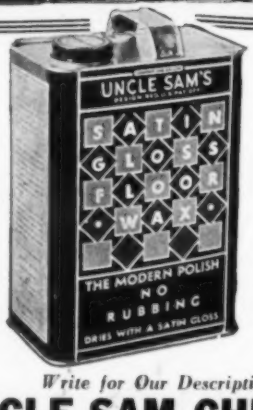

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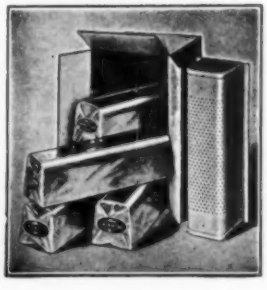

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Data on Protective Creams

The B. F. Goodrich Co., Akron, O., has issued a new catalog section covering its "Clad" protective skin cream for wet or dry work. Conditions under which each type of cream should be used are described and the advantages of the product set forth.

Dr. Compton Joins Velsicol

Dr. Charles C. Compton, Field and Associate Entomologist with the Illinois Natural History Survey since his graduation from the University of Connecticut in 1921, has just joined Velsicol Corp., producers of petroleum chemicals and derivatives, Chicago, as entomologist in charge of the agricultural insecticide division. He will supervise the research program being conducted by the firm, and act as consultant to manufacturers in the field of horticultural and agricultural insecticides. Dr. Compton is a fellow of the American Association for the Advancement of Science and a member of the American Association of Economic Entomologists, the Entomological Society of America, Illinois State Horticultural Society, Illinois State Florists' Association and Society of American Florists.

DR. CHARLES C. COMPTON

He is co-editor of the *American Florist*, official organ of the Society of American Florists.

The latest issue of *Isco News*, house magazine of Innis, Speiden & Co., New York, carries an interesting article on the subject of carnauba wax.

Entomological Meeting Dec. 13-15

The program of the joint meeting of the American Association of Economic Entomologists and the Entomological Society of America which will be held at the Hotel New Yorker, Dec. 13-15, has just been released. One of the highlights of the program is a round table discussion of DDT. Chairman of this discussion is S. A. Rohwer, of the U. S. Department of Agriculture. The complete text of the program follows:

WEDNESDAY, DECEMBER 13
GRAND BALLROOM

10 a.m.—President's Address, American Association of Economic Entomologists. "AN ALL OUT ENTOMOLOGICAL PROGRAM"—E. O. Essig, Univ. of California.

11 a.m.-12 a.m.—Invitational Paper — CONTROL OF MALARIA ON THE SUPPLY ROUTE THROUGH IRAN TO THE RUSSIAN FRONT—L. A. Stearns, Univ. of Delaware.

12 a.m.-12:30—Business Meeting of the Eastern Branch.

1:30 p.m.—Paper reading session, American Association of Economic Entomologists. North Ballroom.

1:30 p.m.—Paper reading session Entomological Society of America. Panel Room.

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Research Chemist, Colgate-Palmolive-Peet Co., Formerly Chief Chemist, Armour Soap Works, Babbitt, N. J.

There is great need for a condensed treatment of the fundamentals of the chemistry and technology of vegetable fats and oils. No attempt has as yet been made to present this highly important and useful information in such a way as to meet the requirements of those practically engaged in the industries which utilize these materials directly or indirectly. The present outline is an attempt to fill this need.

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7:30 p.m.—Preliminary Business Meeting. American Association of Economic Entomologists. North Ballroom.

THURSDAY, DECEMBER 14

9:30 a.m.-12:30 Joint Session. ROUND TABLE DISCUSSION ON DDT. Chairman, S. A. Rohwer, D.E.P.Q., U.S.D.A. Grand Ballroom.

1:30 p.m.-5 p.m.—Same as above.

7:30 p.m.—Public Address. Entomological Society of America. TRANTULAE AND TRANTULA KILLERS. Alexander Petrunkevitch, Yale Univ. North Ballroom.

8:30 p.m.—Sectional Meetings, Apiculture and Extension. East Room—Panel Room.

FRIDAY, DECEMBER 15

9 a.m.—Joint Session. PLANNING FOR ENTOMOLOGY IN THE POST WAR PERIOD. Chairman, S. A. Rohwer, U.S.D.A., B.E.P.Q. Grand Ballroom.

1:30 p.m.—Final Paper Reading Session. American Association of Economic Entomologists. North Ballroom.

1:30 p.m.—Final Paper Reading Session. Entomological Society of America. Panel Room.

3 p.m.—Final Business Meeting, American Association of Economic Entomologists. North Ballroom.

3 p.m.—Final Business Meeting. Entomological Society of America. Panel Room.

Alexander New CSA President

The nominating committee of the Salesmen's Association of the American Chemical Industry, which was elected at the group's annual meeting, Oct. 19, recently announced the following nominations for office for 1945: president, Charles F. Alexander, L. Sonneborn Sons, Inc., vice-president, James J. McInnes, Jr., Commercial Solvents Corp., treasurer, James E. Ferris, Niagara Alkali Co., and secretary, J. Robert Fisher, Fisher Chemical Co., all of New York. Executive Committee members nominated for 1945-1947 were Stephen F. Urban, E. R. Squibb & Sons, Brooklyn, and Alfred T. Loeffler, Monsanto Chemical Co., New York. The annual Christmas party of the Salesmen's Association will be held at the Hotel Roosevelt, New York, December 14.

CHARLES ALEXANDER

Powell Hold Sales Meeting

The annual sales meeting of John Powell & Co., New York, was held at the Hotel Vanderbilt, New York, on November 28 and 29. W. J. Haude, sales manager, presided at the meeting which was attended by all Powell sales representatives from various sections of the country. G. R. Rinke was among the speakers and analyzed the post-war economic situation as it is likely to affect the insecticide industry. John Powell also spoke and outlined the new market possibilities for insecticides in the post-war

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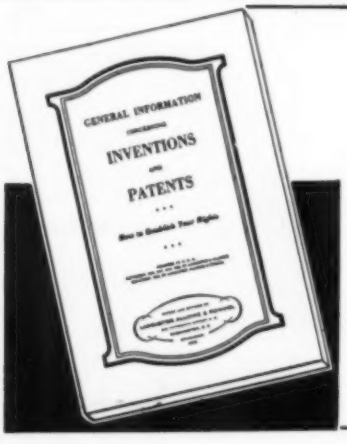

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period. Several new insecticide raw materials recently developed by the Powell organization which will be available for civilian use after the war, were discussed for the benefit of the sales staff. The meeting closed with a dinner at the Hotel Vanderbilt on the evening of November 29.

MORE ABOUT DDT

(*From Page* 149)

DDT dissolved in a suitable volatile solvent remains on surfaces as a nearly invisible deposit after the solvent has evaporated; the deposit acts as a contact insecticide on adult houseflies. Practical tests in dairy barns gave 95 per cent reduction of flies with continued lower fly populations for several months. In one case the walls of an open barn sprayed with a mixture containing DDT 1 per cent, pyrophylite 1 per cent and sodium lauryl sulfate 0.5 per cent in water did not lose their toxicity to flies during 103 days. Applied to horses, DDT sprays gave 100 per cent knockdown and mortality of stable flies alighting on the sprayed animals. In laboratory tests by the spray-funnel method, rotenone was 2.5-4 times as effective in mortality as DDT to houseflies.

Powders consisting of DDT 4-5 per cent in pyrophyllite controlled fleas on dogs, and protected the animals 4-7 days from reinfestation. The dogs were not harmed by the treatment.

Kerosene-DDT sprays were less effective against roaches than kerosene-pyrethrin sprays. DDT powders (3 per cent) equalled a pyrethrin powder (0.66 per cent pyrethrins) when used against *B. germanica* but was less effective against *P. americana*. A DDT powder (10 per cent) was less effective than sodium fluoride on both species of roaches, but on the basis of the amounts of toxicants in the powder, DDT was the more toxic.

DDT alone or mixed with an inert diluent was toxic to ants at relatively low concentrations in a short time. Tests are also reported against a number of different insects which infest vegetables. J. Econ. Entomol. 37, 125-159 (1944).

CHICAGO CHEMICAL SHOW

(*From Page* 47)

product, which is reclaimed from paper mill wastes, is now being used by two manufacturers of detergents, a representative stated. Used in laundries, he said, the product serves to disperse the dirt and prevent its redeposition.

Emulsol Corp., Chicago, featured their various surface active chemicals for use in soap production and other industrial applications. Explaining the many functions of their products was a clever animated display keyed to the catch phrase "Are Your Troubles At the Surface?" E. S. Thayer, sales manager, and S. Epstein, research chemist, were in charge. Construction of a new two-story plant at 19th St. and Kilbourn Ave., on Chicago's west side, is practically complete and initial operations at the new location started in mid-November, Mr. Epstein stated.

"Nothing takes the place of glycerine," was the theme of the Glycerine Producers Association, in whose

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colorfully decorated booth ample evidence to support this position was available to visitors, including a booklet which lists 1,583 ways to use glycerine. Miner Laboratories, Chicago, which conducts the Association's research projects, sent three representatives to staff the exhibit, including Dr. R. N. Dupuis, J. B. Segur and H. J. Wright, Lever Bros. Co., Swift & Co., Armour & Co., Procter & Gamble Co., and Colgate-Palmolive-Peet Co., took turns in sending other soap technologists to assist, and Miss Georgia Leffingwell of the Association's New York office was also on hand for the affair.

Sherwin Williams Co., chemical products division, provided visitors with opportunity to witness the effects of the new DDT insecticide on houseflies. Top, ends and sides of a wooden cage had been sprayed with DDT on Nov. 1 and, during the show, fresh swarms of live flies were placed in the box at intervals of three hours. The residual toxic effect was still evident after more than two weeks.

Among the nearly 200 exhibitors were manufacturers of machinery, instruments and equipment, shipping containers and supplies of every sort required in the chemical industries. Sponsor of the exposition was the Chicago section of the American Chemical Society. M. H. Arveson, senior technologist of Standard Oil Co., of Indiana, was chairman of the general show committee. Dr. H. E. Robinson, assistant chief chemist of Swift & Co., was chairman of the program committee which conducted a series of public lectures and conferences at which chemistry's part in the world of tomorrow was discussed.

REPORT OF THE SECRETARY

(*From Page* 114)

our members regarding wartime regulations are numerous and in most instances we have been helpful. The distribution to our members of the various orders, interpretations and general information, continues.

The Executive Office has sent out over 110 bulletins, during the past year, many of them several pages in length with the full texts of new government orders enclosed. Your Secretary has attended several meetings with other groups. Starting with this meeting, it has been arranged by the Board of Governors to send each member a reprint of all papers read before our meetings which are published in the official magazine of the association.

The future has many problems. These have not changed much from the basic original ones which brought about the founding of the association. The problems are more complex, of greater number and wider in scope. Our membership has grown; our financial position is sound. The future can be faced with more confidence than ever before. This industry, through the medium of the NAIDM, can progress and meet its problems with increased zeal and adequate resources. Problem number one is to devote our resources and efforts to winning the war, but the other problems must be met as they develop. And they will be met and solved, to the mutual benefit of our entire industry.

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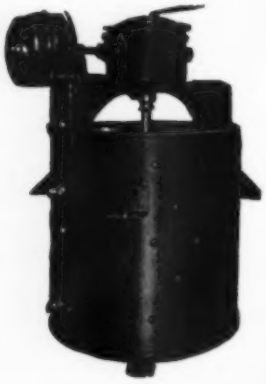

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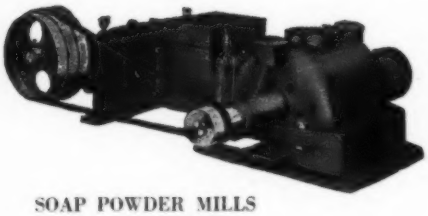

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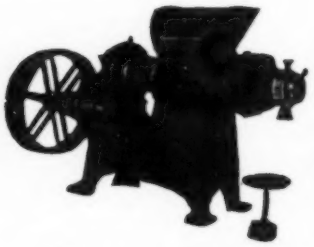

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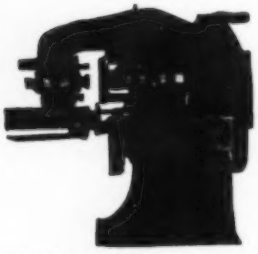

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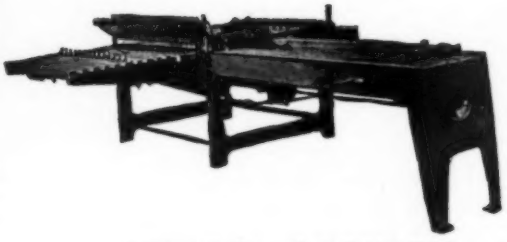

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Chemist: 4 years experience, research development and analytical work, detergents, aromatics, organic synthesis. Interested in position in New York area or California. Address Box No. 847, care of *Soap & Sanitary Chemicals.*

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The 1944 Official Test Insecticide is required for all official testing of insect sprays by the Peet-Grady Method for the period from June 1, 1944, through May 31, 1945.

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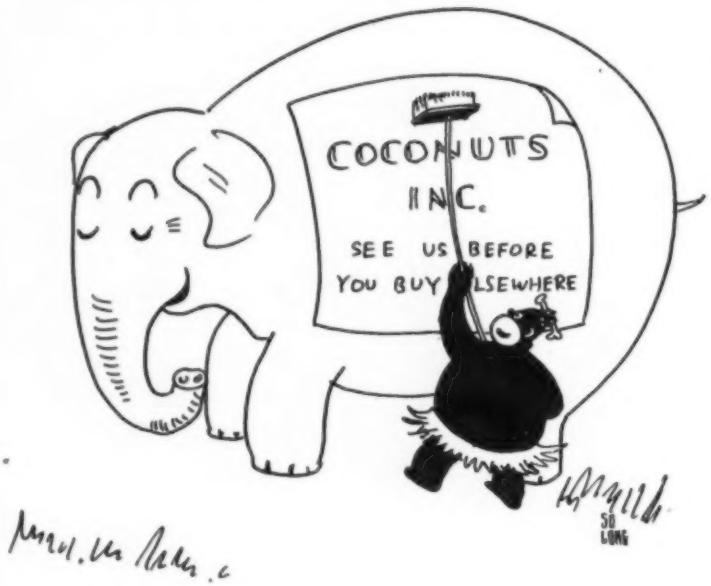

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254 WEST 31st STREET NEW YORK 1

Member Audit Bureau of Circulations

Tale Ends

SOME soap plants will stand idle for at least a part of the current month, having used up their fat and oil quotas for the year, reports indicate. This is strange news when we hear on the other hand that kettle capacity of our soap plants is insufficient to take care of the anticipated demand.

* * *

When will the war end? This question has soap industry purchasing agents biting their nails. For the opinion seems to be quite general that with the end of hostilities,—even the hostilities in Europe,—the fat and oil market is due for a genuine break. And no purchasing agent wants to be sitting on a large inventory under such conditions. In fact, some soap manufacturers who apparently believed the reports of last spring that the European war would be over by Christmas, right now find themselves a trifle on the short end of raw materials.

* * *

Preston Peaker's department, "Over the Transom," has been dropped out this month as old gumshoe is on vacation. At least, it gives the editor a breathing spell from making explanations. That guy, Peaker, gets us in more hot water than a shower bath.

* * *

The quantity of pyrethrum extract involved at Mare Island Navy Yard, — as reported by Peaker last month,—was not $200,000 worth, but 2,000 gallons of 20-1 extract. It is no longer listed there as "surplus" but will be kept in stock for use in making Navy insect sprays. Rumor has it that WPB tipped off the Navy on this "surplus pyrethrum."

* * *

From technical writing to fiction . . . Richards Jarden, prez of Franklin Research, Philadelphia, is the author of a new best-seller, *Flying Marquis*, published by Dorrance & Co. He has been the author of many articles on floor waxes and floor maintenance, some of them in these columns.

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